

InSight

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"A teacher ought therefore to be as agreeable as possible, that remedies, which are rough in their own nature, may be rendered smoothing by gentleness of hand; he ought to praise some parts of his pupils' performances, to tolerate some, and to alter others."

~Quintilian, *Institutes of Oratory*

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"Highly effective teachers tend to reflect a strong trust in students. They usually believe that students want to learn, and they assume, until proven otherwise, that they can...Above all, they tend to treat their students with what can only be called simple decency."

~Ken Bain, *What the Best College Teachers Do*

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“Learning as we must understand it today...does not involve people’s assimilation of knowledge, it involves people’s assimilation into communities of knowledgeable peers. Liberal education today must be regarded as a process of leaving one community of knowledge and joining another.”

~Kenneth Bruffee, *The Art of Collaborative Learning*

INTRODUCTION

About Park University...

Park University (originally Park College) was co-founded by Colonel George S. Park and Dr. John A. McAfee in 1875. An independent, private institution, accredited by the North Central Association of Colleges and Schools, Park University currently enjoys a distinguished position in higher education as a growing institution with 40 campus centers in 21 states including an extensive Online degree program. In 2005, Park University created The Center for Excellence in Teaching and Learning to promote the practice and profession of teaching, including scholarly inquiry into teaching across the disciplines. *InSight: A Journal of Scholarly Teaching*, an outreach of the Center's programming, is a refereed academic journal published annually. The editorial staff invites submissions of research and scholarship that support faculty in improving teaching and learning. Open to submissions from all disciplines and institution types, *InSight* articles showcases diverse methods for scholarly inquiry and reflection on classroom teaching.

From the Managing Editor...

As I write, I sit in my little 'scriptorium' at home on a very hot June day, and think about how much my life is surrounded by readers and writers: my students, who are often impatient to complete their undergraduate degrees quickly, not always realizing how their undergraduate education becomes the bedrock for everything else they do after they leave the university. This volume of *InSight* presents a range of fascinating essays by professors who care a great deal about their students: about how and what their students learn, about how best to structure courses that open up their students to infinite possibilities, and to create challenging but nurturing environments for teaching and learning. Teaching as we do in the digital age, many of the essays included in this issue address ways to use technology in and out of the classroom. Particularly thought-provoking is the opening editorial by Professor David Mathew, from the University of Bedfordshire in the United Kingdom. In his essay, "*The Internet is Unwell...and Will Not Be at School Today*", he addresses important issues relating to online anxiety that many students—and faculty—face when trying to understand the vast world of the internet and online learning. The essays that follow include discussions and analyses of various issues relating to how we teach and how our students learn. The essays include discussions of such topics as comfortability, collaborative learning, twitter in the classroom, and more, and conclude with an intriguing essay that advocates giving students the opportunity to challenge multiple-choice questions as a means of encouraging critical thinking. It is an array of essays that will no doubt bring about many interesting conversations among peers.

I have very much enjoyed the privilege of serving *InSight* as Managing Editor these past few years, and have learned much about how a journal comes together in the end. I could not have done this without the support of Dr. B. Jean Mandernach, Executive Editor; Jamie Els, Assistant Director; and Keith Snyder, Copy Editor. In addition, I also thank Professor Gail Hennessy, who takes care of all things CETL, and has been a great support to me. While I am a little sad to say goodbye, I am very excited that Dr. Stacey Kikendall will take over the duties of Managing Editor in the coming year. To her, and to all of you, I leave you with one wish: that all of us continue to teach and learn, and to engage in those things that most challenge and nurture our students, our colleagues, and ourselves. À bientôt!

--Lolly Ockerstrom, PhD

"Research...means looking – and looking again...We do not need new information; we need to think about the information we have. We need to interpret what goes on when students respond to one kind of assignment and not to another, or when that – and then to interpret our interpretations."

~Ann E. Bertoff, *The Teacher as Researcher*

The Internet is Unwell... and Will Not Be at School Today: Oppositions, Omissions and Online Anxiety

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Introduction: An Abstract through a Negative Lens

It might be useful to be explicit about what this paper does not contain. This paper will not contain hearty recommendations of online learning from seasoned professionals in the field, or from the confident learners who have been lucky enough to work with them. This paper will not contain a defence of online learning (neither, however, is it intended as an attack on the same, or as an evagation of the manifold accounts of successful online learning projects that bespatter the World Wide Web). It will not contain a comprehensive overview of online learning practices around the globe (assuming that such a study would be possible at anything less than book length, anyway). Nor is this paper's ambition (or that of its author) such that a more localised examination of the online learning environment in UK Universities has been undertaken. Instead of any of the above, this paper presents a picture of a Fragile Learner, struggling and anxious in the online milieu, and attempts to view his plight through the lens of psychoanalytic applications. In the course of researching this work, however, the author discovered a good deal of anxiety among colleagues who had been asked to work in this way for the first time in an attempt to meet learner demand. Using transcripts of short interviews with three anxious colleagues, the aim is to show how debilitating an enforced teaching role on the Internet can be, and we apply to the learning process the theoretical work of Carl Rogers, Jacques Lacan and John Steiner. We discover that Rogers had discussed the Fragile Learner as long ago as the middle of the previous century, in all but name; and by employing a stitchworked tapestry of anecdotes and memories, the former of which are accurate and the latter of which are subject to the customary erosion caused by time, self-protection and chronic narcissism, the paper refers to a learner's shame and humiliation in online learning.

...this paper presents a picture of a Fragile Learner, struggling and anxious in the online milieu, and attempts to view his plight through the lens of psychoanalytic applications.

A Reflective Return to Absence

In 2011, I published a paper entitled "*The Absence of E*", in which I compared the experiences that I had had with two specific learning programmes. One of these had learners enrolled who had no access to the Internet whatsoever (they were detained, at Her Majesty's Pleasure, in a maximum-security prison for Young Offenders aged 18 to 21), and the other had learners enrolled who only had access to the Internet and not a single meeting with their tutor. Anecdotally accurate and scientifically questionable, the paper provided the expected (and desired) split reactions of apoplexy and high praise when I presented it to a large crowd in Italy in the same year. I argued that *in these specific examples* – with acknowledged differences in academic subject matter, academic level, age group, geographical location, and so on (there was scarcely a control factor in sight!) – the learners on the Internet-only course, with their academic levels capped at a pre-Masters plateau, experienced no obvious sense of deprivation in their pedagogic

endeavours. Banned from using the Internet because of the natures of their crimes, their distance learning programmes consisted of solitary study in their cells and then a weekly group meeting with a facilitator (me), at which their issues were resolved, their essays printed out, and then the essays would be sent by regular postal services to the people who would grade the work. I argued that as a result of this model, the learners were able to channel their dammed-up anxieties into one factotum every week (again, me) and that the teachers (at a distance) were oblivious to any negative emotions and feelings of insecurity that the learners were not shy to show in the classroom setting. “(W)ould this task group have benefited from regular access to the Internet?” I asked rhetorically (Mathew, 2011, p. 482).

Possibly it would have lent each learner more of a sense of autonomy, the acquisition of which might have led to a more determined approach; but it is plain to see that it was not the medium of travel that was the problem – it made no difference if the assignment was sent by email or handed to me to put in the post – the problem was me. Or more specifically, the problem was whoever happened to be in my shoes, in front of those distance learners once a week. My very presence was a shortcut (or so they believed) to the right answer, or to the right way of researching something; with nobody to guide them, arguably, these learners’ experiences would have been more honest and more robust. A human intermediary between the learners and their (numerous and unseen) teachers was a mere substitute for the Internet. They already had all of the papers and materials that were required; it is my contention that the Internet might even have got in their way and hampered their progress (Mathew, 2011, p. 482).

By contrast, the programme that was delivered entirely online consisted of learners who were able to direct their anxieties, fears and complaints directly to the primary educator, via the Web. Despite the existence of online services designed to support our learners with issues outside the main course of study, the students enrolled in overseas settings used the teacher, not only as the first port of call, but very often as the *only* port of call. And while it is not possible to quantify anxiety precisely, it seems evident that the overseas learners, with no access to their tutor, exhibited a good deal more angst than even the learners in the prison with their one day a week with their facilitator (which, in turn, as above, was not even noticed by their actual teachers outside the prison walls). From these observations, I concluded that learners without access to the Internet on a distance learning programme were not disadvantaged; that educators teaching on such a distance learning programme were spared the anxiety of their online colleagues; and that the online tutor takes on more than a pedagogic role – he or she is often obliged to take on a pastoral responsibility, whether or not he or she has been trained in such matters or has any willingness to engage in this field of specialism. Again, I wondered aloud:

Has a distance learning programme succeeded if it cannot claim to have offered relevant pastoral support for learners...Should a distance learning programme plan the pastoral role that is sometimes required by students? While working at the prison I was able to contain such issues, were they ever to arise, but it might be argued that the Internet, while providing a safe and (largely) efficient mode of delivery, paradoxically creates further challenges by making feedback too easy and embedding a certain (over?) sensitivity to students’ needs. (As Obholzer (1994) paraphrases neatly: ‘responsibility is terrifying’ (p. 172).) The broad question, in a nutshell, might be: Where does the pastoral role fit in with the role of the distance learning lecturer? ...Do we need to be better aware about the links

between pedagogy and the containment of learner anxiety? (Mathew, 2011, p. 485)

The Absence of E (2011) was a highly subjective and personalised account, of course, and it delivered me into a small amount of very small-scale trouble, part of which was its very intention. (If you can't set the cat among the pigeons at an international conference, then where *can* you do so?) However, the conclusions that were drawn back then (three years being a long span in technological terms) are all the more valid today. Despite the ease with which we might have assumed to have taken to online learning by now, there are doubts that thrive; there exist anxieties that only experience in the medium will placate, with words of reassurance seeming redundant and even self-negating. "When the farthest corner of the globe has been conquered technically," I quoted Slavoj Žižek as saying

and can be exploited economically; when any incident you like, in any place you like, at any time you like, becomes accessible as fast as you like; when, through TV 'live coverage' you can simultaneously 'experience' a battle in the Iraqi desert and an opera performance in Beijing; when, in a global digital network, time is nothing but speed, instantaneity; when a winner in a reality show counts as the great man of the people; then, yes, still looming like a spectre over all this uproar are the questions, What is it for? Where are we going? What is to be done? (Žižek, 2008, p. 274)

Rogers and the Fragile Learner

I had arrived at the term "Fragile Learner" and had defined it privately with a view to writing about it (or about him or her) long before I read Elizabeth Chapman Hoult's exemplary work on academic resilience and the resilient learner, *Adult Learning and La Recherche Féminine* (2012). To no man do I bow in my admiration of this work, but I mention it for reasons other than simple respect. Proving that ideas are in the air for anyone to pluck (a conceit shored up, perhaps, by the startling similarities in the views offered by the interviewees herein), Hoult and I had chosen to concentrate on facets of our learners that had not been explored in any great detail up to that point. Where Hoult's work focused (*inter alia*) on strategies employed by adult learners that serve to keep them in education, my own focus was on the reasons why learners struggle specifically on online programmes – these reasons being geographical, cultural, social-economical, and so on. When I co-wrote the paper entitled "*Distance Learning Students: Should we use Technology or Pedagogy to Overcome Work and Life*" (Mathew & Sapsed, 2012), for example, we were thinking of the Fragile Learner in all but name. In this paper we discussed "the stories of three learners on the distance learning option of a Masters degree in Public Health, which is offered by a University in the United Kingdom. These learners were challenged by obstacles related to their employment," and the paper "outline(d) some of the technological and pedagogic strategies that were employed to address these challenges. In a highly reflective manner we present(ed) findings that might suggest little more than common sense – that with distance learning programmes, both technology and pedagogy are vital components but are interdependent on one another – but we hope(d) to show ways in which an academic tutor online assumes roles that are often beyond the customary scope of teaching: he or she is frequently obliged to assume pastoral

A Fragile Learner is close to giving up at any point – close to breaking. He or she is on a brink: a solitary waft of condemnatory breeze can push this student into the pedagogic abyss. Unlike the more determined and self-confident online student, the Fragile Learner might struggle with motivation and self-directed study habits.

care roles that might be better suited to a counsellor or a professional in a different industry.”

A Fragile Learner is close to giving up at any point – close to breaking. He or she is on a brink: a solitary waft of condemnatory breeze can push this student into the pedagogic abyss. Unlike the more determined and self-confident online student, the Fragile Learner might struggle with motivation and self-directed study habits. He or she might also struggle with the technology itself – or with the notion of being forced into online groups for the purposes of completing a task. Time management might be problematic; the ability to conduct research and to communicate through writing even more so.

The notion of such a precarious, knife-edge *modus operandi* is not new, however, although it might be shunned often as a modish concern. Indeed, we can refer to the middle of the twentieth century for a glimpse of what I have termed fragility. No lesser figure than Carl Rogers might well have been discussing the Fragile Learner in the Fifties. For although he did not use the term *fragile learner* in his “explosive” paper entitled “*Personal Thoughts on Teaching and Learning*” (Rogers, 1958), this work contains a compressed blueprint of the traits and characteristics that such a learner exhibits. The interesting thing, in addition, is that the paper’s only personal subject (and provider of sensory evidence) was the author himself. Similarly, the adjective “explosive” was Rogers’s own reflection on his work’s reception at a Harvard conference. But why was the paper so challenging? One interpretation might be that even now, nearly sixty years on, its unrelentingly pessimistic tone on the twinned topics of teaching and learning remains shocking. Delivered as it was at *Harvard* of all places (an expensive seat of education), the paper’s banner of futility was a source of professional outrage.

What does it say? Rogers prefaces his thoughts with a paragraph in which he implies, in a somewhat self-deprecatory manner, that none of what will follow is to be taken generally or non-specifically: what follows are opinions, nothing more and nothing less:

I find it a very troubling thing to *think*, particularly when I think about my own experiences and try to extract from those experiences the meaning that seems genuinely inherent in them. At first such thinking is vary (*sic*) satisfying, because it seems to discover sense and pattern in a whole host of discrete events. But then it very often becomes dismaying, because I realize how ridiculous these thoughts, which have much value to me, would seem to most people. My impression is that if I try to find the meaning of my own experience it leads me, nearly always, in directions regarded as absurd (Rogers, 1958, p. 4).

Continuing in the same vein (of equal parts self-flagellation and expectorative satire), the author writes: “It seems to me that anything that can be taught to another is relatively inconsequential, and has little or no significant influence on behaviour” (Rogers, 1958, p. 4). At least with this statement the author adds something of an ironic caveat: “That sounds so ridiculous I can’t help but question it at the same time that I present it.”

“I realize increasingly that I am only interested in learnings which significantly influence behavior,” he adds; and “I have come to feel that the only learning which significantly influences behavior is self-discovered, self-appropriated learning” (Rogers, 1958, p. 4). In other words, Rogers seemed to be asking: What’s the point of more formalised (more formulaic?) learning? There is nothing worth learning apart from what I discover by myself; the presence of an educator is tokenistic at best (we interpret further). Crucially, Rogers was saying that those who teach are redundant in the learner’s mind; and having rubbished his own achievements as an educator, the author decides: “I realize that I have lost interest in being a teacher” and “I realize that I am only interested in being a learner,

preferably learning things that matter, that have some significant influence on my own behavior.”

There is much about the above that pertains to the construct of the Fragile Learner. Fearful in advance of a disappointing pedagogic exchange, the Fragile Learner is aided by anxiety and a pre-trauma depression to demand things on his or her terms. This might mean that he or she concludes in advance that formalised teaching is worthless; or it might mean that he or she goes into the experience with nervous trepidation, already resigned to the option of a painless retreat when matters become difficult, at which point he or she can blame the teacher or technology, safe in the result of a self-fulfilling prophecy: if I believe that something is bad before I experience it, it will be bad. This might even qualify as an application of the psychoanalytic concept of projection, as defined by Laplanche and Pontalis as an

operation whereby qualities, feelings, wishes or even objects, which the subject refuses to recognise or rejects in himself, are expelled from the self and located in another person or thing. Projection so understood is a defence of very primitive origin which may be seen at work especially in paranoia, but also in ‘normal’ modes of thought such as superstition. (Laplanche & Pontalis, 2006, p. 349)

The Fragile Learner, primed by anxiety, might be unconscious of, or successful at managing, feelings of self-hatred and the fear of failure. On experiencing this very same failure, he or she “projects” the feelings on to another “guilty party.” And although aggressive conduct is outside the purview of this paper, it is worth noting, parenthetically as it were, that the Fragile Learner does not always know how to behave with civility while online. The antagonistic nature of some participants to online interactions lends credence to the notion that there are those who support an internal system of beliefs surrounding the idea of voluntary violence. In the life of someone who already maintains something of a marginalised existence, we might easily believe that emotions overwhelm the capacity to rely on a rational response; self-destructive behaviours are apt to be precipitated.

At the heart of any such systems – as a general rule – will be anxiety.

Interview 1

The three interviews that punctuate this paper were conducted in identical circumstances. All three subjects work inside the Faculty of Health and Social Sciences. All three subjects had been required to undertake some of their teaching commitment online for the very first time. Although the questions that were asked were the same, for the sake of completion and flow, other comments that add to the overall picture have been left in. Other comments that are not pertinent to this paper and refer mainly to other issues have been excised.

Interviewer (I): What is your experience of online learning, either as a learner or as an educator?

Subject 1 (S1): From a learner’s point of view, I have done a number of online packs. From a university point of view, the mandatory training type of packs, and also being enrolled on the LEAN Institute healthcare – I had to do a few packs with them, looking at service improvement, as a student.

I: What were your general impressions of them as a student?

S1: I quite enjoyed doing the packs. To me they’re a form of escapism. When I ought to be working and I can’t concentrate on other things, I go on to do a pack – because it takes me away from the shop floor, if you like, and I can do something positive.

I: As someone new to online learning, were the packs organized well enough that you could follow them easily?

S1: Yes, on the whole. I think, one of the downsides is, with some of the questions you can remember the answers, so you can quickly whiz through them, having remembered the answers (from a previous visit to the resource).

I: So these were predominantly question-and-answer-type packs?

S1: Yeah. I find them quite helpful. I think, from an educational point of view, online packages are a great way forward.

I: With that in mind, would you be happy to take on more responsibility for other learning packages going online?

S1: Yes, I would be quite interested. In the reorganization that we had in 2012, there was a role for online learning and there was one half of me that would have been interested in that. It would have been my second choice in terms of roles and responsibilities.

I: If you think back to before you taught online, when you first thought about teaching online, how did you feel then?

S1: Terrified. When I first thought about doing a distance learning pack, I envisaged the old Open University model, with books and packs, and that's what I had in mind. When (my manager) started talking about e-books and the like I nearly freaked! I thought, 'I can't do this!' I'm not brilliantly computer literate and I didn't know how it would be set up, and I was in a complete panic about it.

I: Did you see being computer literate as a necessary part of offering an online course?

S1: I thought you'd have to be. I don't know enough about computer programs to know how much I would need to be involved in the development side of it. I thought, "If anything goes wrong, what do I do?" It was that kind of thing. I didn't know what support there was.

I: Why do you think you thought this way at the time?

S1: I didn't know what kind of support there was out there. I thought, "If I go online and something goes wrong, I'm leaving the students in limbo without a package working – electronic things, if a system crashes, what kind of back-up there is." I was scared about that side of things.

I: I think we can agree that the most unpredictable thing about any educational interchange is the person. The most predictable is the technology. It will either work or it won't work. There's no kind of middle bit. People are endlessly variable; technology isn't. So did you think, "I don't have a back-up plan if this doesn't work?"

S1: Yes, but also, having got it online, you think – with any organization – something new comes in and you try it, and the support is there initially but then it goes. I was worried about being left in limbo with students shouting at me, saying that these packs don't work.

I: Have your feelings changed since the course started – or more specifically, since you started teaching online?

S1: Definitely. I think the support you've given me is absolutely magnificent.

I: Thank you; that's very kind.

S1: I think your enthusiasm for it has made me want to take it on more...and going back to a question you asked me earlier, I think if you hadn't been as supportive as you were, I think I wouldn't. I know there's someone behind me, and you've given me confidence to go ahead and do this. I'm dreading the day when you send me an email saying you're moving on (to another job). People do move on and I'd be absolutely lost without you.

I: How do you feel about online learning now?

S1: I think it's a brilliant concept. Concept's the wrong word. Approach. But I do have some concerns. In terms of engagement...I know we've talked about students having certificates when they complete courses (i.e. certificates generated automatically upon completion of the online tasks). That would be something, from my point of view, that would be useful to stay students have done this. In terms of underpinning learning, the way computers are going now, you can have Blackboard now and BREO now on mobile phones and tablets, take them anywhere – instead of

books and documents (which are harder to transport). As a way of learning, it's really positive.

I: What do you think is the future of online learning?

S1: I think it's going to be around for a long time. I think it's going to get more technical. To me, it's probably the way forward in terms of student attraction, in terms of student numbers – because I can see we can work with overseas universities – and I think as long as you can build in a way of checking that students are engaging...as long as you put in safeguards...For the (name of the course), the students submit a (physical, hard copy) portfolio, so they've passed from that point of view. Possibly if we could get a discussion board going, and I could chip in every now and then...The last time I tried it, it was really a one-sided feedback. The students didn't discuss anything with each other; it was all directed at me.

Anecdotal Gobbet the First

As part of an online course about online learning in 2014, I was invited to contribute my thoughts to a video filmed by a female student of approximately nineteen years of age. I wrote:

Hello, everyone. I've posted a couple of thoughts about Scenario 2 below, but one thing I don't think has been mentioned is the student's response in Scenario 1. Although she has technology at her disposal, I would argue that she doesn't seem particularly happy with what she's been able to achieve. Now, granted, some of this might have been for the benefit of the camera; but perhaps it should be noted more often than it possibly is: the realisation that not even what we have access to now will be sufficient for some of our students; that it won't be fast enough or loud enough, etc. How do we, as educators keep up with student demand even if we DO fully embrace the notion of mobile learning or new advances?

Crash Course in Anxiety

The study of anxiety is at the root of psychoanalytic explorations of the human condition. Given that psychoanalysis is a field in which an adult's problems, however outlandish or outré, can be "explained" or qualified by the discovery of an event (or series of events) in that person's childhood, it is not difficult to believe that an anxiety about learning *per se* can also be rooted in one's babyhood or infancy. But what *is* anxiety? From the acres of literature on the subject, it is easy to determine that the definition has no simple consensus. In the same way that we might disagree on what individually we have self-diagnosed when we utter the sentence "I have a cold," we are likely to be discussing different matters when we confess to sensations of anxiety. Let us attempt, however, to sum up the findings.

Mild anxiety is vague and unsettling, while severe anxiety can lead to panic attacks which can be extremely debilitating, having a serious impact on daily life.

Often triggered by events that are unique to an individual, anxiety is a term used to describe a number of psychological conditions. It is something experienced, to one extent or another, by every man, woman and child, and arguably even by some animals (separation anxiety in pet dogs and horses, for example). It is the sensation of stressful expectation that one feels for no apparent good reason; the gloomy dread with which one sometimes wakes up in the middle of the night. As a state of worry or nervousness, anxiety is often accompanied by a vague unpleasant feeling that something bad is about to happen. Mild anxiety is vague and unsettling, while severe anxiety can lead to panic attacks which can be extremely debilitating, having a serious impact on daily life...For the purposes of this submission, we will be clear to distinguish anxiety from *stress*: they are not the

same. Nor is anxiety a synonym for fear, although the terms are often used interchangeably.

Among the many thousands of words on the subject penned by Sigmund Freud, his description of anxiety as having an “unpleasurable character” in *Introductory Lectures on Psychoanalysis* (Freud, 1916) seems like a masterpiece of understatement. However, a decade later, he gave us a full-length exegesis of anxiety, which is often cited to this day. “If a mother is absent or has withdrawn her love from her child,” he writes, “it is no longer sure of the satisfaction of its needs and is perhaps exposed to the most distressing feelings of tension” (Freud, 1926, p. 87) According to Martin Heidegger,

“anxiety is characterized by the fact that what threatens is nowhere and nothing” (Heidegger, 1962, p. 231); whereas Melanie Klein cites the Grandfather of Psychoanalysis when she writes: “Freud put forward to begin with the hypothesis that anxiety arises out of a direct manifestation of libido” (Klein, 1948, p. 25). She expands this opinion by stating that “in young children it is unsatisfied libidinal excitation which turns into anxiety” and that “the earliest content of anxiety is the infant’s feeling of danger lest his need should not be satisfied because the mother is ‘absent’” (Klein, 1948, p. 26). Klein had previously written: “In early infancy anxieties characteristic of psychosis arise which drive the ego to develop specific defence mechanisms” (1946, p. 1) – which made a link between anxiety and the systems of defence that we use in troublesome situations, or in the predictions of troublesome situations. She makes it clear in the later of these two papers that her belief is that “anxiety is aroused by the danger which threatens the organism from the death instinct” and that “anxiety has its origin in the fear of death” (Klein, 1948, p. 28). She adds

...the internet can make us feel helpless; it takes on a parental function to reduce states of internal tension.

if we assume the existence of a death instinct, we must also assume that in the deepest layers of the mind there is a response to this instinct in the form of fear of annihilation of life...the danger arising from the inner working of the death instinct is the first cause of anxiety. (Klein, 1948, p.29)

Childhood is, of course, the time when we learn many of the lessons that we take with us throughout our lives. Meltzer informs us that “the anxiety apparatus is a vital tool in the hands of the ego for the achievement of learning and the accomplishment of maturation” (1955, p. 11) and that “the capacity of anxiety is innate in the mental apparatus” (Meltzer, 1994, p. 6). In the child’s very early years, when he is unable to “distinguish body from external object, the infant cannot...experience yearning towards or frustration by, but only distress” (Meltzer, 1994, p. 6). This distress is closely linked to “two forms of anxiety, persecutory and depressive, (which) are the primitive forms and the prototypes for later objective and instinctual anxieties. The distinction between the primitive and mature forms is founded on the degree of reality underlying them” (Meltzer, 1994, p. 9). Anxiety for a child might occur at a moment of indecision, emotional imbalance or ambivalence: the moment when he understands that the mother who deserves his hatred is the same as the mother who deserves his love.

In more ways than the obvious (our subjugation to a superior other occurring simultaneously with a transient sense of self-worth and power), we are all children understanding our mother’s identity when we contemplate the World Wide Web. It is nigh-on impossible to ignore it, after all; it is easy to hate it for the time it wastes, for our slavish dependence on it; and yet, how we smile when we find that nugget of information! In the case of the latter, the cessation of anxiety is the result of an awareness of *jouissance* (see below for a section on Jacques Lacan, who popularised the term *jouissance* in psychoanalytic circles to mean a form of complicated happiness). Furthermore, the Internet can make us feel helpless; it

takes on a parental function to reduce states of internal tension. To a certain extent, anxiety is a warning against insanity; also it is a soporific.

Meltzer tells us that our acquired anxieties are indeed based on expectations and predictions. "When the objects are not performing in the expected way – that is, when they have become bad and persecuting – the infant is unable to form a prospective phantasy of relief" (Meltzer, 1994, p. 7); and "when a prediction that is of importance with regard to plans for relief of tension fails, the phantasy that results is of the current tension extended in time. The content of this phantasy will extend to eternity until a new prediction is formulated" (Meltzer, 1994, p. 9). Meltzer also points to the link between anxiety as a condition and the illness that it might precede. "But the warding off of anxiety is quite another matter," he writes,

Here the ego...adopts a policy never again to experience some specific anxiety phantasy and its affect. This is quite a serious determination, for such a policy implies the abandonment of maturation within the lifespan compartment involved. The result is a functional disease. (Meltzer, 1994, p. 11)

Here, 'affect' might be defined as an emotional response.

However, anxiety is a useful emotional commodity: it is more than the inappropriate switching on of a "flight or fight" response to deal with a threat to one's survival – a threat that might not even exist. In common with the brains of our primitive forefathers, the brain scans one's environment for threats but it cannot always tell the difference between a real threat and a perceived threat, and so both possibilities are treated in the same manner. A region in the brain called the amygdala "connects" the two situations and forms an unconscious memory of the association. When a stimulus occurs later, the amygdala is activated in the same way that it was in the presence of the original threat. Similarly, when one is in a situation somewhat like a situation of threat from the past, the brain notes the similarities and triggers the flight or fight response again, even if such a response is not called for. Anxiety might manifest itself as a sense of mounting physiological arousal, or as bodily and thinking symptoms – a headache, a stomach ache, the inability to recall something that is seemingly important. How, then, can anxiety be considered important in an educational milieu?

Yet, ironically, the physical space in which the learner works – deprived of human interaction, for example – could easily provoke tensions of entirely the opposite, claustrophobic kind. The learner's irrational fear, however, is precisely of that which cannot harm him, which is one reason why it qualifies as an example of anxiety.

Building a relationship between motivation and anxiety, we might agree that one needs an optimal quantity of pressure under which to work and learn. One's performance (linked to one's sense of personal wellbeing) is achieved at a moderate level of emotional arousal: if the arousal is too little, the result is boredom, and if the arousal is too much, the result is anxiety. Both of these conditions will inhibit effective efficiency. But should this mean that no anxiety is the gold standard?

In *A Critical Dictionary of Psychoanalysis*, Charles Rycroft writes that

the usual definition of anxiety as irrational fear applies strictly only to *phobic anxiety*, which is evoked by objects and situations such as open spaces, closed spaces, heights, spiders, snakes, thunder, travel, crowds, strangers, etc., to an extent which is out of all proportion to their actual danger. (Rycroft, 1995, p. 8)

Examining the category of phobic anxiety for a moment, a comparison is within easy reach, albeit a comparison on the level of metaphor. The "irrational

fear...evoked by objects and situations" is one that we can imagine a student (or colleague) suffering, faced as he or she is by the situation of cloistered study in an online and possibly alien environment. The object is a screen on which unexpected material appears at the press of a button, or worse still fails to appear as a result of user ignorance; or the object is a keyboard, on which letters of the alphabet have been arranged in a peculiar order (especially if the student is not used to typing). In fact, any individual item of the learner's hardware or physical environment – the mouse, the chair, the desk – can be elevated to the order of object in the mind of the anxious Fragile Learner. Then again, so can *virtual* objects – the icons, the on-screen folders that are difficult to unpack – and let us not forget the resonance of the word *object* itself, particularly when uttered in Freud's accent, with his influential and ghostly breath in our ear.

The examples that Rycroft uses, furthermore, are similarly apposite. Stripped down and seen in the light of a largely solitary experience, online learning is one person, a device, and a virtual doorway onto a cosmos of information. It is entirely understandable, surely, that a learner might regard this virtual open space – the Internet – with at least a modicum of agoraphobic tension. Indeed, it is an opinion that might well have been shared by Gaston Bachelard in *The Poetics of Space*. Commenting on the anxiety of open spaces, he wrote: "Here fear is being itself. Where can one flee, where find refuge? In what shelter can one take refuge? Space is nothing but a 'horrible outside-inside'" (Bachelard, 1964, p. 211).

Yet, ironically, the physical space in which the learner works – deprived of human interaction, for example – could easily provoke tensions of entirely the opposite, claustrophobic kind. The learners' irrational fear, however, is precisely of that *which cannot harm him*, which is one reason why it qualifies as an example of anxiety. Given that it is impossible to be directly harmed by the Internet (and as a slightly paranoiac parenthetical aside, we might feel inclined to add the qualifier 'yet', or 'at the time of writing'); and given that it is impossible to hurt the Internet (as if it were a vast and sentient beast that could be speared), it is irrational for anyone to experience anxiety at its contemplation. Yet people do – our learners and our educator colleagues among their number. The anticipation of interfacing with something so immense, something so (theoretically) infinite, is awesome. It is bigger than the conceptual capacity of our brains, the vast majority of which we either fail to use or fail to understand anyway. Given that the Internet is a matrix of a million minds, a conglomerated record of the sum of human endeavour, and the resting place of more billions of dumb ideas and cretinacious ejaculations than there are stars in the Milky Way, it is impossible to contemplate boasting of comprehending but an infinitesimal nail-paring of our Internet.

What is more, it is expanding still. While listening to BBC Radio 4 on my journey to a work appointment on 4 February 2014, I heard that the Internet would be introducing new domain names in the near future. The reason for this was not (as one might have expected it to have been) solely the result of the Internet being full to capacity – as full of vibrant websites and dead links as an ocean is crammed with pulsating existence and dead grains of sand – but also the result of demand far outweighing demand in the case of specific industries requiring their industry-specific URLs. Or to put it another way, come the very near future, the proposition is that it will no longer be sufficient to expect (say) a bookstore to lug behind it an old-fashioned dot-com or dot-co-dot-uk domain handle. Certain sectors want to be known as (again, for example) as dot-books sites from now on. If we give it time, and if the inference we draw is correct, the Internet will eventually be crammed with dot-books, dot-banks, dot-music and dot-sex sites, launched fresh and clean from the ashes of a previous World Wide Graveyard that is unlikely to tidied up this side of forever. The point surely must be more acute than a mere recognition of competing market forces: that bookstores would relish the altered economic gladiatorialism of a new Web arrangement is quite possibly no great surprise; nor is the fact that businesses with the same domain name (to a certain extent) even levels these same gladiatorial fields and pitches. What we have here, in addition, is

an example of mutated epiphenomenalism. Where “traditional” epiphenomenalism espouses the view that mental events are caused by physical events in the brain, yet have no effects upon any physical events, what we might be encountering, as we plough the early spring fields of the 21st Century, is a situation whereby the brain’s muscles have contracted after receiving their neural impulses, and the brain has now organised the movements of millions to its own ends. The brain, however, belongs to no single human mortal: the brain is the Internet itself, and it controls our times.

And time is also important to an appreciation of anxiety. Arguably, anxiety cannot ‘exist’ or function without time – or rather, without one’s awareness of time. Even if the spell of anxiety exists only for a moment, there is likely to be an (unconscious) object from the past under mental consideration – a broken toy in one’s attic, as it were – and the shortest duration of anxiety-filled time nonetheless presupposes the notion of time passing via psychic reference to a moment that *might* happen. By way of examples, let us consider the bereaved or the chronically chemically addicted: both groups (among many) are instructed to live one day at a time – or might tell others that this is the living pattern they have ‘chosen’ to adopt. Whether we agree that such a perusal of the future in bite-sized chunks is a deterrent against anxiety, or whether we suspect that such a tactic, while no doubt useful for some, is for others an invitation to depression on the instalment plan. Therefore, taken literally, anxiety about the future is actually anxiety about both an unknowable entity and a fairly abstract concept. Given these qualifications, what we refer to is really a phobia – an irrational fear of something that is unlikely directly to harm you.

Interview 2

Interviewer (I): What is your experience of online learning?

Subject 2 (S2): Where do I start? Just from my personal point of view, my experience of it is only through my academic studies. We were introduced to a lot of online facilities because it’s all about self-learning, and I suppose with the students I’m working with, they are encouraged and expected to do a bit of online learning to do their own research. In the job I have I didn’t have, initially, too much involvement with that. I just left other lecturers to that, so the limited knowledge I have is from my own personal studies, when the lecturer has put course information online, so I have no choice – I can’t avoid that. So I have to make myself learn to access that information and get by.

I: What courses have you been involved in with online learning?

S2: I have done the Postgraduate Diploma in Medial Education. I did the Certificate to start with and then the Diploma level. I’m embarrassed to say that to study at that level I should have a good knowledge of working online, but technology is not my strong point – I’ve always been frightened of it and I’m ignorant of how to navigate around those systems. When I click onto that page, where else do I go? What do I do? I suppose I’m not the adventurous type who would click on this just to see what happens. I’m from the old school where you learn from a text book; you go to the Contents page to find what you want.

I: So do you think the course was badly designed?

S2: I don’t think the course was badly designed; it’s just that everything is going towards technology and computers and I’m just in this time-warp and I haven’t moved on. Much as I try, it’s partly (that I have) no interest and partly I’m too scared. Also, there is the time factor, and finding someone who is patient enough to guide me through.

I: When you first thought about taking an online course, either as a student or as a teacher, how did you feel then?

S2: I dreaded it...but there is no choice in the matter, because the lecturer or the programme manager is saying, “The information for your course is online – log on and you’ll get it.” That freaked me out. It doesn’t do me much good – my

confidence – because I'm academic staff and yet I'm still struggling with that. It's come to a point where I ought to pack it in.

I: Pack in teaching?

S2: Yes. I know I'm a good teacher, and the way that I'm teaching is kinaesthetic, and the students benefit from it. Even yesterday, when we were doing simulation, they were asked in the feedback, what did you find most useful? And they answered, the session they did with me. And they left the room, all coming to me to say thank you. But it still doesn't give me any comfort because it's come to the point where (technology) is overriding all the good things I've done.

(S2 starts crying.)

I: I'm sorry, I didn't mean to make you upset.

S2: You didn't. It's not you.

(S2 presents material not relevant to this paper.)

S2: Even online marking – I've taught myself and it's slow, but I got there, with some help from yourself and from colleagues. At least I got there, but my anxiety level is up again because the next course is coming up. Previously it was five contact days with the students, but now they've reduced that and two of the days are online. As a lecturer I have to get to grips with the online before I encourage my students. The last time I taught that, I just about managed to navigate my way in and show them and that's as far as I got. I just haven't got the guts to go in and participate in the way that (the course manager) would do and interact with the students and answer their questions. I feel a failure.

I: You've kind of answered this already, but...You said that you approached your online course with dread, but why do you think you felt that way?

S2: I feel I'm incapable, or haven't got the skills, to log in and explore what's available, whereas with a text book I know I can turn the pages. With online, you have to have the knowledge or the imagination to think, okay, where can I find that information?

I: But if you're not taught how to do these things, there's a lot of assumption that you'll know what to do.

S2: Over the years, working for the University, I do feel that that's one big gap, in the sense that it's taken for granted that you know. There isn't anyone who checks that you do have that knowledge. I suppose I've got to be accountable and say, I don't know this, and go find out. I find it very frustrating. As academics, we bend our backs backward to support our students – I would do anything for my students to ensure a smooth passage for them – but for the staff there isn't that induction period. For example, we are supposed to be putting information on (the Virtual Learning Environment) for the students. I know I can go on the courses (to teach aspects of the VLE) and I went on that, but the pace was so fast that I couldn't catch up. And in those days, there wasn't a need for me to use it frequently, so I soon forgot what I learned and I struggled again. I'm only learning on the hop because when I'm desperate I've got to do it – to learn it – at the last minute. I would love to be able to say I've got the leisure to go on a course. Work commitments do not allow me the time to do anything at all. I mean, a lot of my studies, I'm doing it on my own time or on holidays. I'm told I have five days to concentrate on my studies, but every time I plan something it gets cancelled because something has cropped up. And you've got to deal with it. So you put things on the back burner – you put it even further back in the drawer.

I: I think you've answered this, but I'll ask it anyway to keep things the same (with the other interviews). Have your feelings changed since you started teaching in the online environment?

S2: My feelings about it – the anxieties and the fears – are still there. In fact, it's worse now – it's heightened – because I feel I'm being cornered into a situation where I have to get through it. It's either that or pack it in, because I hate to feel I'm doing a job and it's only fifty per cent. Or even seventy or eighty per cent. For me, if I'm doing something, it has to be one hundred per cent. Some days I know I'm being hard on myself, but I know if someone is relying on me to learn then I

shouldn't disadvantage them. I know how it feels, as a student, to feel disadvantaged because you have to go online – you have no option – and I hate to think I'm disadvantaging my students this way. University students can get online and work it out, but the students on (a particular nursing course) – some of them are dinosaurs like me and I feel I have to help them. When I start on that course I always have to freak myself out by going on (the VLE) again – go through a rehearsal, logging in, so then I can get one of the students who has anxiety like me, and ask them to log on. I prefer them to be in control of the mouse, even if it takes some time.

I: How do you feel about online learning now?

S2: It hasn't got any better. It's even more stressful now – it's got worse. It's making me feel even more incompetent.

I: How do you see online learning progressing in the future?

S2: I think this is how the world is going to be. It's going down this electronic pathway. It's about preparing people to accept that – to work with it. Maybe I'm a defeatist; I feel like a defeatist. I feel I'm too old to learn new tricks. Or maybe I'm too stupid or too daft to learn new tricks. If I haven't got anything better to do – if I'm retired – maybe it's something I'll enjoy, learning at my own pace. But the work demand is such that I haven't got that luxury to do that. For me as a learner, trying to get on with working online, it's like working in enemy territory. There are landmines everywhere and I don't know where to tread. I could be blasted off anywhere.

Anecdotal Gobbet the Second

Every year I organise a writing retreat for colleagues at the University, on the first morning of which the participants are asked to describe, in less than two minutes, the history, rationale and proposed publishing destination of the paper that they intend to finish drafting. Even though I am explicit upfront about the fact that there will be no Powerpoint available, it is interesting to note the high percentage of people who arrive wielding flashdrives and handouts. I explain that this is "old school": that they will have to use words from their mouths and notions from their brains. The only visual aids permitted are what they might scribble or sketch at that moment.

Technology can be used as a shield, perhaps, but what happens (as it were) in the absence of E? A group of lecturers is confined to an atmosphere of first principles, under the gaze of colleagues who will almost certainly remain empathetic (because everyone will have a turn). The absence of E is an opportunity to rifle through old drawers, in search of tools that have not been used in years. The crutch is kicked away, and one is obliged to recall that there was a time when one did not need it in order to walk.

Lacan's Missing Pieces

"I have opposed the psychologising tradition that distinguishes fear from anxiety by virtue of its correlates in reality," writes Jacques Lacan (1990, p. 82). "In this I have changed things, maintaining of anxiety – *it is not without an object.*"

We are entering Lacan's bizarre world (and I do not believe that he would have been offended by my adjective), in which his seminars played to packed venues and lasted one year each; in which his unorthodox methods in the analytic session led to his name being struck from a list of training analysts; and in which Woman does not exist – in which he proved, that is, via a scientific model of his own devising, that Woman (not women) does not exist. Irascible, brilliant, difficult (in every interpretation of the word and in every life context imaginable) – not to mention being a psychoanalytic law unto himself – Lacan has been envied, feared, ridiculed and lauded for well over half a century; and although he has been three decades in the grave, the debates about his academic pugnacity versus the feasibility of his snake-oil salesman ruminations rumble on.

Speaking and writing phenomenologically, Lacan states that “anxiety is an affect of the subject – a formula which I did not put forward without subordinating it to the functions that I have long established in the structure of the subject, defined as the subject that speaks and is determined through an effect of the signifier” (Lacan, 1990, p. 82). When we add the dimension of *affect* as an emotional state of being, the affect itself can be regarded as an indicator of one’s reception of a transmission that emanates from without one’s psychic apparatus. In Lacanian formulations, anxiety is not without an object – the object is *objet petit a*. In turn, the *objet petit a* (or “object petit a”... but always “petit a” and never, as we might translate it, “small A” or “lower case A”) is the definite object, which is symbolic. “For the subject, there is substituted, for anxiety which does not deceive, what is to function by way of the object petit a” (Lacan, 1990, p. 8). Lacan insisted that the term should remain untranslated, believing that it would acquire the status of an algebraic sign. (Lacan, we might reasonably infer from this alone, had sufficient supplies of antibodies against modesty – as might befit a psychoanalyst of whom more has been written than any other practitioner bar Freud.) In *objet petit a*, the “a” stands for “autre” (other), and Lacan had developed it from the Freudian “object” and his own notions of otherness.

At the root of our anxiety about tests...is a fear of providing the wrong response – in turn, a by-product of a fear of being humiliated and shamed...In Lacanian terminology, we might say that questions...that one cannot answer...can cause the erosions of the ego under the gaze of the Other.

Encapsulating his ideas in miniature is like nailing water to a wall, but let us attempt to anyway, with the aid of an example. The object petit a is the thing to be anxious about and simultaneously the thing that is non-existent. It is the space between what the subject does not have and what he desires to have (the latter accompanied by the anxiety of desiring it). One might hear (or say) “I am anxious about my test tomorrow.” In this construction, Lacan would regard the test tomorrow as a replacement for the failure of the ego – the loss of the self. The test (in this example) becomes a symbolic image onto which we project the object petit a. At the root of our anxiety about tests (and this does not only apply to students in an exam hall either) is a fear of providing the wrong response – in turn, a by-product of a fear of being humiliated or shamed; of being seen in the open, stripped of any academic disguise. In Lacanian terminology, we might say that questions in general and questions that one cannot answer in particular, can cause the erosion of the ego under the gaze of the Other.

In paranoia and schizophrenia, the Other occupies the position of an absolute other, and the subject, recognizing a lack in the Other but an unsymbolized one, attempts to complete the Other, since the Other’s lack is unbearable, experienced as the destruction of the Other. This completion is achieved by the subject becoming the object of the Other’s *jouissance*, the plaything of the Other... – so writes Leonardo S. Rodriguez in *A Compendium of Lacanian Terms* (Rodriguez, 2001, p. 26),

a 220-page book that attempts to define Lacan’s *terminology alone*.

In the same volume, a different writer, Huguette Glowinski attempts to explain it thus:

The subject apprehends a lack in the Other, something the Other wants. The subject locates his/her own lack at the point of lack perceived in the Other. The first object the subject proposes as the lost object or lack is him-/herself – can he/she lost me? – the fantasy of one’s death or disappearance (the subject producing the lack in the Other following the course of the death drive). (Glowinski, 2001, p. 12)

For a third opinion, I refer to Renata Salecl's extraordinary work, *On Anxiety* (Salecl, 2004).

Fantasy and anxiety present two different ways for the subject to deal with the lack that marks him or her as well as the Other, i.e. the symbolic order. With the help of the fantasy, the subject creates a story, which give his or her life a perception of consistency and stability, while he or she also perceives the social order as being coherent and not marked by antagonisms. If fantasy provides a certain comfort to the subject, anxiety incites the feeling of being uncomfortable. However, anxiety does not simply have a paralysing effect. The power of anxiety is that it creates a state of preparedness, so that the subject might be less paralysed and surprised by events that might radically shatter his or her fantasy and thus cause the subject's breakdown or the emergence of a trauma (Salecl, 2004, p. 47).

Furthermore, in the words of the same author, "a computer, too, can be taken as a big Other – a new type of symbolic space" (Salecl, 2004, p. 158). Our Fragile Learner, we might infer, is simultaneously drawn to the anxiety-inducing computer (and by extension, his or her studies) as a way of validating his or her academic image, and repulsed by the deficiencies that he or she finds staring back at her from the Internet's symbolic image. The Fragile Learner and the World Wide Web watch one another, enveloped in sensations of cosy gestation and alarming flashes of dread and hopelessness, wondering if he or she is good enough to embark upon the pedagogic journey that lies ahead.

The fact that Lacan elaborated on the notions contained herewith in a volume entitled *Television* (Lacan, 1990) is interesting; possibly it even qualifies as irony (although irony is an elastic and elusive topic in psychoanalysis). Granted, he was not writing *about* television (the book is at heart a transcript of his appearance *on* television), but we might imagine, for a moment, that he had television very much on his mind. It is easy to be "soothed" by television (as it is with the Internet): people talk of it "relaxing" them... or to put it another way, of its ability to sedate and induce (at times) a state of near-catatonic cretinization. One of the many characteristics of Lacan that we might infer is that he took it upon himself to confront the Fragile Learner. He made his students work hard; he assumed a huge stock of common knowledge before he began talking – and yet (or perhaps because of this gladiator-cum-circus-ringmaster pseud- and pseudo-arrogance) his students adored him. They knew that he was on their side during the Parisian student riots in 1968. Confrontation was a certain antithesis to fragility.

Interview 3

Interviewer (I): What is your experience of online learning, either as a learner or as an educator?

Subject 3 (S3): As an educator, as you know, for the last two years we've had lots of blended learning – e-learning I call it – on to the (name of course) site. Working with that has been a big learning curve for me. The learners have to work through scenarios and answer questions, and they post their findings onto discussion boards. The scenarios are issues that are commonly found in practice. What I've found is there's been a real richness of replies and material they've posted, and certain sentences keep coming up – "I've never thought of this before" or "I didn't know this was so complicated." The amount of material they've written down, and their responses to the scenarios, has been very rich. I think they've learned more like that than (they would have) sitting in a classroom, having lecturers discussing these issues with them. So I've been really pleased with it. The problems I've had with it have been about my own inexperience with dealing with IT (Information Technology) myself and finding where they've actually posted their replies. It's

been my ineptitude, and the fact that I have to explain to students something I'm not confident with myself. Some of them know more than I do about IT; some of them know less than I know about IT. So, I think, the problems have been technical, but the learning that has come out of it has been richer. That's where we are with it, really.

(The interview is halted at this point for reasons irrelevant to this paper.)

Anecdotal Gobbet the Third

More than a dozen years ago, with a different work hat on, I interviewed a writer for a magazine. The Twin Towers had recently fallen and I mentioned this in the interview. His response was that people needed to talk less to one another. Thirteen years later, we live in an age of mass loquacity, with hundreds of choices for ways to communicate, and it would be entirely feasible to spend an entire working day answering emails (if you were not selective). Is this an improvement, I wonder? We certainly have more information than ever before – or rather, we have faster access to information that proliferates, gets diluted, gets reformed and recontextualised – and the “art” of information filtration becomes more and more a survival instinct or a coping mechanism than a conscious decision.

Steiner on Hiding

“The patient who has hidden himself in the retreat often dreads emerging from it because it exposes him to anxieties and suffering – which is often precisely what had led him to deploy the defences in the first place...” writes John Steiner (Steiner, 2011, p. 3), who continues to say that “the first and most immediate consequence of emerging from a psychic retreat is a feeling of being exposed and observed” (Steiner, 2011, p. 3).

Considered under a different psychoanalytic spotlight, we might regard Fragile Learners as people who want to improve their lot or as people who want to hide from what they perceive to be the rigid social demands of a classroom setting. In 1993, John Steiner published *Psychic Retreats* (Steiner, 1993) – a seminal text in psychoanalytic literature. Employing a careful balance of clinical and theoretical material, the author ratiocinated a proposal whereby a hard-to-reach patient will create mental sanctuaries and bastions against painful and unwanted reality. This effect is achieved via the adoption and manipulation of underlying pathological organisations of the personality; subordinating oneself to these organisations is a means of coping, of retreating – or of hiding.

Though Steiner's rate of production in the years that followed might usefully be compared with that of an oyster, and though his oeuvre remains small, it is as perfectly formed as a pearl. Indeed, it is on his second full-length volume, *Seeing and Being Seen* (Steiner, 2011) that we might rely to gather some hints about our Fragile Learner in the online environment – and in an anxious state.

Seeing and Being Seen – a follow-up of sorts – has Steiner describing patients *emerging* from a psychic retreat, and concentrates on willingness, anxiety, shame and humiliation. Not for one moment would it be my intention to belittle or attempt to dilute the very real suffering that such patients must endure on a more or less uninterrupted basis; however, I do believe that there is something analogous and of interest to note with reference to our Fragile Learner. Indeed, it is my contention that some learners (and some people in general) use the Internet as a place to hide, and not hide in the sense of simply spending time away from the ‘thick of it’ or the ‘world at large’ (and note the lexical choices of density and size when we describe something from which we wish to retreat). No: this is hiding in the sense of someone experiencing anxiety. This is the Fragile Learner, using the endless reaches of the Web, not only as a place to review his opinions of himself (and anything else) – and not only to revalidate himself in the eyes of others (or the

Lacanian Other) – but to make himself small...to make of himself something tiny in a galaxy of soothing and useless beauty. Steiner writes that

using the notion of psychic retreats enables us to recognise that pathological organisations are also represented spatially as hiding places to which patients may withdraw. Within the retreat they feel sheltered from view, and from these hiding places their objects are also not clearly visible. These retreats may appear as phantasies that are sometimes visualised in creams and other material as houses, castles, or fortresses but usually turn out to involve groups of people. Safety is then conferred by membership of a group or the protection of a powerful individual (Steiner, 2011, p. 3).

In Steiner's formulation, who is in charge? Who is (as it were) the Fragile Learner's projection of the punitive superego? "The observing figure is felt to be hostile, attacking the superiority of the narcissistic state and trying to reverse it so that the patient feels inferior" (Steiner, 2011, p. 7); and what is more, "Sometimes the persecution is more feared than the physical attack" (Steiner, 2011, p. 7) – which sums up the irrational nature of anxiety as well as anything. And just to prove that there is no one way to regard any of the above, Steiner writes, "Many psychic retreats are based on feelings of resentment, which are nursed and held on to because the patient does not have the confidence to emerge from the retreat and express them as hatred and a wish for revenge" (Steiner, 2011, p. 12).

Paying due homage to Freud's classic late paper, "*Analysis Terminable and Interminable*" (1937), Steiner references "patients who cling to their illness and defend it by every means possible. When this happens," he argues "the patient's illness forms an essential part of the psychic retreat, and if the analyst is experienced as trying to help the patient, the pleasure of thwarting him may be more immediate than the satisfaction to be gained from change" (Steiner, 2011, p. 16).

Not only does the Fragile Learner have his own self-harming/self-protective instincts at heart and in play, he also yearns to punish those who would endeavour to help him. Therefore, at the same time as we consider why people hide, perhaps an equally appurtenant question would be: Why do people want to be seen? Why *would* they want to be seen? Why are we not more afraid of the Internet and of solitary confinement?

Conclusion

A scarcely-believable seven years have passed since I left the job in Education Management at that Young Offenders' Institute and yet the anxiety sparks in the short circuits of my psychic apparatus, from time to time. During periods of looming deadlines or work pressures I still dream of being at school and being incapable of handing in my Maths homework, of missed trains, planes or boats – or of being locked in a classroom with ten murderers with identical facial features.

Why should this be?

As I mentioned above, anxiety might have something of a phobic quality about it. There is no chance that memories of that prison can harm me, and yet anxiety re-visits me from time to time – created from the psychic raw sewerage of night fears, the awareness of bills due, and the recollections of mistakes made. When we examine the transcripts of the brief interviews that I conducted, we see that the time that has elapsed between the subjects being told that they were to work online and the subjects' reflections on their endeavours, the results have been of muted success at best (with Subject 2 confessing that the duration has made her even *more* anxious than she had been at the beginning). Despite Subject 2's reference to herself as a "dinosaur," all three interviewees were competent academic practitioners, inside the somewhat fuzzy parameters of what is usually called "middle age" (as is your author). Dwarfed by increases in work expectations,

the subjects have shown that they are every bit as fragile as the Fragile Learner who covers in skittish expectation of the next chapter in the book of their self-betrayal.

Such mistrust, however, can be harnessed; determined energy may be distilled from anxiety, even if it leaves us with an analyte of unknown concentration, subject to the metaphorical titration that is the work of our punitive superegos (whether we like it or not). This paper, having a string of negatives in its abstract, will conclude with more negatives, but not with negativity. If the mood throughout seems bleak, it has been hard to avoid the melancholy that has been part of a disappointment with online learning in certain quarters. Although successes in online learning are not rare, it would be easy to defend an opinion that online learning has not developed as we might have hoped – as quickly, as redefinably. Its accouchement might not have been exactly pain-free, but now that it has been with us for the better part of two decades, does it really seem any older than two years old? The *tools* have developed; connection speeds have improved...but contemporary distance learning is built on fundamental pedagogic principles as old as the human race.

So is anxiety. While I am not anxious about the future (not anxious as we have discussed the condition in this paper, though concerns about ageing, loved ones and money are inevitable), I have given the examples of three interviewees who referred to their notions of time passing, in one way or another, as pertinent ingredients in their anxieties. Of course, this was hardly surprising, given the questions that they were asked; but even so, it is worth noting. Anxiety is more than their fear of change, these colleagues and our Fragile Learners alike: anxiety is the troubled glimpse of what has not or cannot come to pass, addressing an academic system in a solitary position. Perhaps it qualifies as irony the fact that with our Fragile Learners dispersed around the globe, it might be the very condition that is dreaded – anxiety – that it is the thing that they all share in common.

References

- Bachelard, G. (1964). *The poetics of space*, trans. Maria Jolas. Boston, MA: Beacon Press.
- Freud, S. (1916). Introductory lectures in psychoanalysis. In J. Strachey (Ed.), *Standard Edition of the Complete Psychological Works of Sigmund Freud* (Vols. 15-16). London, England: Hogarth Press.
- Freud, S. (1926). Inhibitions, symptoms and anxiety. In J. Strachey (Ed.), *Standard edition of the complete psychological works of Sigmund Freud* (Vol. 20). London, England: Hogarth Press.
- Glowinski, H. (2001). Alienation and separation. In H. Glowinski, Z. Marks, & S. Murphy (Eds), *A compendium of Lacanian terms*. London, England: Free Association Books.
- Heidegger, M. (1962). *Being and time*. Oxford, England: Blackwell Publishers.
- Hoult, E. C. (2012). *Adult learning and la recherche féminine: Reading resilience and Hélène Cixous*. New York, NY: Palgrave Macmillan.
- Lacan, J. (1990). *Television: A challenge to the psychoanalytic establishment*. New York, NY: W. W. Norton & Co.
- Laplace, J., & Pontalis, J. B. (2006). *The language of psychoanalysis*. London, England: Karnac Books.
- Mathew, D. (2011). The absence of E: The role of the Internet in two distance learning programmes. *Research in Post-Compulsory Education*, 16(4), 479-488. doi.org/10.1080/13596748.2011.627118

- Mathew, D. (2012, October). The role of the online personal tutor. Paper presented at the meeting of the Proceedings of the 11th European Conference on e-Learning, The Netherlands.
- Mathew, D., & Sapsed, S. (2012). Distance learning students: Should we use technology or pedagogy to overcome work and life obstacles? *E-Learning Papers*. Retrieved from <http://www.openeducationeuropa.eu/en/article/Distance-Learning-Students%3A-Should-we-use-Technology-or-Pedagogy-to-Overcome-Work-and-Life-Obstacles%3F>
- Meltzer, D. (1994) *Sincerity and other works: Collected papers of Donald Meltzer*. London, England: Karnac Books.
- Obholzer, A. (1994). Managing social anxieties in public sector organizations. In A. Obholzer & V. Z. Roberts (Eds.), *The unconscious at work: Individual and organizational stress in the human* (169–178). New York, NY: Routledge.
- Rodriguez, L. S. (2001). Autism and childhood psychosis. In H. Glowinski, Z. Marks, & S. Murphy (Eds.), *A Compendium of Lacanian Terms*. London, England: Free Association Books.
- Rogers, C. R. (1958). Personal thoughts on teaching and learning. *Improving College and University Teaching*, 6(1), 4-5.
- Rycroft, C. (1995). *A critical dictionary of psychoanalysis*. London, England: Penguin Books.
- Salecl, R. (2004). *On anxiety*. Abingdon, VA: Routledge.
- Steiner, J. (1993). *Psychic retreats*. London, England: Routledge.
- Steiner, J. (2011). *Seeing and being seen*. Hove England: Routledge.
- Žižek, S. (2008). *In defense of lost causes*. London, England: Verso.

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Healthcare Learning Community and Student Retention

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Teaching, learning, and retention processes have evolved historically to include multifaceted techniques beyond the traditional lecture. This article presents related results of a study using a healthcare learning community in a southwest Georgia university. The value of novel techniques and tools in promoting student learning and retention remains under review. This study includes a healthcare learning community as a cutting-edge teaching and learning modality. The results of an introspective survey of 22 students in a learning community explore strategies to enhance culturally relevant teaching, learning, and retention. Although learning and retention studies have been conducted at numerous universities, few have included feedback from students in a healthcare learning community. Frequencies from student responses were tabulated using five thematic factors: social support, career knowledge/opportunities, academic support, networking and faculty rapport/relationship building. Of the five theme areas, social support was identified most frequently by students as a means to support their learning and retention in the university setting.

An emerging trend in higher education is the formation of learning communities. Learning communities came to the forefront in the late eighties and early nineties (Browne & Minnick, 2005). Learning communities in their most basic form begin with block scheduling that enables students to take courses together. In some cases, learning communities link students by tying two or three courses together (Tinto, 2000). Such was the case with a healthcare learning community at a four-year southwest Georgia university. Three courses were linked together using a healthcare theme. The courses were Healthcare Administration Practicum, Human Resources Management, and Quality Management in Healthcare. Each course was taught by a faculty member in their area of specialty. Two faculty members had a specialty in health administration, and one faculty member had a specialty in human resources management. Each faculty member hoped to resolve a dilemma in the teaching and learning process during the learning community, while promoting student retention. The dilemmas were as follows: to minimize the lecture teaching format and thereby encourage critical thinking among the students; to modify the teaching pace and delivery methods so as to enhance student comprehension; and to successfully transition from industry to academia with positive student responses and adaptation.

The learning community was specifically designed to provide healthcare management students with an overview of human resources and quality functions in the healthcare setting. Another goal of the healthcare learning community was to increase interdisciplinary learning by reinforcing communication in all three of the linked courses. To facilitate the activities in the learning community, group sessions were held on a monthly basis for one semester. The group sessions are used to present guest speakers, facilitate group activities, and to obtain feedback from student participants. All members of the healthcare learning community were assigned to a community healthcare agency and a student project team. Each student and project team assisted a local healthcare agency in the resolution of a quality management problem. This article focused on the value of the learning community to support learning and student retention.

The healthcare learning community merged varied faculty backgrounds to integrate creative teaching methodologies. As a result of the healthcare learning community, faculty members united to strengthen the students' writing, critical thinking, professional skills, and adaptation. Due to the networking and interaction between students and faculty, long-term effects of the healthcare learning

community were envisioned – especially in relation to the learning and retention of students at the university.

To date, much research has been done on measures to increase student learning and retention. However, there is not a common set of tools that has been adopted in either two- or four-year universities to adequately address the areas of learning and retention collectively. A few years ago, ACT, a nonprofit organization offering educational and workplace measurement services, conducted a nationwide study on retention and determined factors related to increased student retention in public four-year colleges and universities. Responses were received from 258 (of 598) public four-year colleges and universities. The median first- and second-year retention rate was identified as 75%, with a median degree completion (learning) rate of 49% for the group (ACT, 2010).

Even so, the extent to which these factors have been consistently implemented and assessed in the improvement of learning and retention is unclear. The top ten factors identified for improving retention were: internships, tutoring, faculty use of technology in teaching, summer orientation, individual career counseling, student leadership development, college-sponsored social activities, writing center/lab, career exploration workshops or courses, and advising interventions with selected student populations. The three practices making the greatest contribution to learning/retention were: freshman seminar / university 101 (credit), supplemental instruction, tutoring, and living/learning communities (ACT, 2010).

Likewise, studies on student engagement and satisfaction have been conducted by several organizations and universities. An example of a survey of student engagement and satisfaction that is commonly conducted in four-year colleges is NSSE (National Survey of Student Engagement). Even so, few retention studies have included the viewpoints and feedback of actual students in a learning community, relative to their beliefs and perspectives on student learning and retention. Since the national rate of student persistence and graduation has shown little change over the past decade, there is a need to translate research into practice. However, many bodies of research have supported the benefits of student involvement during the critical first year in college (Tinto, 2001; Upcraft, Gardner & Barefoot, 2005). Accordingly, Lev Vygotsky, a highly regarded theorist, viewed societal and individual development as benefits of the teaching and learning process (Vygotsky, 1978).

Therefore, this case study of 22 students in a healthcare learning community attempts to add some insight into this area of student learning and retention from the students' perspectives. The ultimate goal is to find what works, develop models, and put them into practice. While learning communities had positive effects on student achievement and satisfaction, researchers have found it difficult to discern which part of the learning community (e.g., integrated courses and assignments, study skills training, or mentoring) actually affected the students most positively (Andrade, 2007).

Background on Student Learning, Retention, and Learning Communities

"The concept of a community of learners originated from a democratic, student-centered, inquiry-based philosophical perspective grounded in the works of Dewey, Vygotsky, and Bruner" (Mintrop, 2001). Vygotsky's work on knowledge construction through social interactions greatly supports learning communities that engage students in critical thinking, and peer and teacher interaction (Vygotsky, 1978).

Student learning and retention have also been related to: (1) students' background; (2) goals and commitment to education; (3) experiences at the institution related to interactions with academics, faculty, and peers; (4) external commitments while in college, and (5) integration both academically and socially (Tinto, 1973). Numerous studies have suggested that learning communities

enhance retention, increase student grade point averages, and increase student satisfaction (Baker & Pomerantz, 2000; Brickman, 2010; Selix & Willen, 2010).

In a study of a learning community that linked three courses in a nonthemed learning environment, participants were matched with a nonlearning community control group (Baker & Pomerantz, 2000). The findings from the study revealed that the students in the learning community demonstrated increases in their grade points averages and levels of satisfaction (Baker & Pomerantz, 2000). Students at LaGuardia Community College in New York City who participated in a learning community were also more satisfied with their educational experiences, as indicated by their persistence rates (Tinto, 1998).

Learning communities help to build peer networks, which improve student retention when courses are blocked together (Brickman, 2010). Shared educational experiences encourage excellence in the classroom and provide assistance outside of the classroom in the form of study groups and support networks (Brickman, 2010). Therefore, learning community students feel a sense of belonging; they feel supported.

Students in learning communities tended to form their own self-supporting groups, which extended beyond the classroom (Tinto, 2000). Learning community students also became more actively involved in classroom learning than other students, even after class. Participation in the learning community seemed to enhance the quality of student learning. More importantly, as students learned more and saw themselves as more engaged both academically and socially, they persisted at a substantially higher rate than did comparable students in the traditional curriculum (Tinto, 2000).

A wide range of studies, in a variety of settings and with a range of students, have confirmed that academic and social involvement enhances student development, improves student learning, and increases student persistence (Tinto & Engstrom, 2002). Students who are involved with people and activities of learning communities are significantly more likely than their less involved peers to show growth in intellectual interests and values, and apparently more likely to get more out of their college education (Cross, 1998).

Students in learning communities tended to form their own self-supporting groups, which extended beyond the classroom.

Theoretical Framework

Collaborative learning represents a significant shift away from the typical teacher-centered lecture in the college classroom. Teachers tend more to be expert designers of intellectual experiences for students as opposed to being expert transmitters of knowledge in learning communities (Smith & McGregor, 1992). Reflective interviews with learning community teaching teams have also been known to strengthen dialogue about teaching and learning.

Collaborative learning represents a "re-vision" of the higher education classroom. It is grounded, however, in the fundamental goals of higher education: critical thinking and analysis, ability to work with others, appreciation for diverse perspectives, connection-making, and integration of learning and involvement in one's own learning process (Moore, 2010). The collaborative experience also provides intellectual coherence and offers a concrete approach to core values of liberal education. Through linked courses, students acquire a multidimensional view of select disciplines that can be placed in a critical framework for learning (Mendelson, 2006).

Collaborative learning has been labeled as a tool for professional development and problem solving (Nayan, Shafie, Mansor, Maesin & Osman, 2010). In addition to the classroom collaborative component of learning communities, learning communities serve a social function related to community needs in current medical education (Ferguson, Wolter, Yarbrough, Carline & Krupat, 2009). Other

goals of learning communities in Canadian and U.S. medical schools are fostering communication among students and faculty, promoting caring trust, teamwork, and helping students establish social support networks. Curricular purposes included professionalism training, leadership training, and service learning (Ferguson et al., 2009).

Collaborative learning also reflects changes in how learners view and understand knowledge and learning, changes in how learners view themselves and their peers, and changes in how learners view the role of the teacher. The student moves into the role of active agent and the creator of “new knowledge.” The student’s tolerance for diversity and openness to teamwork increases as peers are seen as sources of knowledge. Additionally, the teacher is seen less as an expert and more as one who is willing to share knowledge in a mutual learning process (Moore, 2010). Collaborative learning also sends dynamic messages about the awareness of students regarding their responsibility for both their own learning and the learning of others (Moore, 2010).

The closely related concept of collaborative transformative practice was popularized by Vygotsky, who laid the foundation for the theory of this practice in teaching. Learning can be conceptualized as the transformation of socially shared and contextualized activities into internalized processes to support internal and external social and individual continuity (Miller, 2011). “Vygotsky’s project was constructed on the grounds of the notion that collaborative purposeful transformation of the world occurs through principled grounding for teaching learning and development” (Miller, 2011). Also, learning gains meaning with a purposeful life agenda aimed at contributing to society or societal practices. Accordingly, knowledge and facts gain meaning through active pursuit, efforts, and inquiry, as well as activities significant to students and their identities (Miller, 2011).

Phrases commonly associated with Vygotsky’s legacy are higher mental/psychic functions, cultural–historical theory, or cultural–historical psychology (Stetsenko, 2010). Vygotsky’s project was developed during a time of radical social change. He promoted a psychology for a socialist society—individual freedom through societal contribution—as a collaborative endeavor. Cultural tools bridge the gap between the person and environment in a mutual reciprocal fashion (Gibson, 1979).

Project Description/Methods

Students from the healthcare learning community were asked to complete a learning/retention survey during the first group meeting of the learning community. The initial group meeting was held about one month into the healthcare learning community activities. Twenty-two students in the healthcare learning community completed the survey, allowing for results representative of a case study. Enrollment in all three of the healthcare learning community courses represented approximately 52 students.

The 11-item survey requested demographic information on each student, along with their viewpoints on the connection between their learning, retention, and the healthcare learning community. Students who felt that their learning and retention would be supported by the healthcare learning community were asked to provide up to three factors supporting their response. The responses of the healthcare learning community students were compiled and grouped thematically, as follows: (Personal) Support, Career Knowledge and Opportunities, Academic Support, Faculty Rapport/Relationship Building, and Networking. Responses were counted in a maximum of three theme categories for each respondent.

Results – Evaluation Effectiveness

Of the 22 student survey respondents, 20 (90.9%) were female and 2 (9.1%) were male. Thirty two percent (7) of the students were ages 17 – 21; 36% (8) were ages 22 –26. Seven (32%) of the students were older than age 27. One

hundred percent of the students listed their major as healthcare management. Other majors in the Business College which were not included in the study were: Accounting, Business Information Systems, Logistics, Marketing and Supply Chain Management, and Management.

The majority (68%, or 15) of the respondents were enrolled in the Healthcare Administration Practicum course, 14% (3) were enrolled in the Human Resources Management course, and 18% (4) of the students were enrolled in the Quality Management in Healthcare course. Overwhelmingly, the students were juniors and seniors (98%, or 21).

The majority of the healthcare learning community students had been enrolled at the university for four years (8, or 36.4%). Seven (31.8%) of the students had been enrolled for more than four years and approximately 7 (32%) of the students had been enrolled for two to three years. One hundred percent (22) of the students reported their enrollment status as full-time. Ten students (45%) reported part-time employment, and 7 (32%) reported full-time employment. Five (43%) of the students reported their employment status as "not employed." When asked if a learning community will help to "retain and support you as a student," 20 (90.9%) of the students responded favorably, and 2 students (9.1%) responded "no."

...80% of the students viewed the healthcare learning community as a source of personal and social support and as a major factor for their learning and retention.

The results of students' viewpoints on their learning and retention are presented in themed categories in order of response frequency:

Social Support

Sixteen or 80% of the students viewed the healthcare learning community as a source of personal and social support and as a major factor for their learning and retention. Their responses in the support theme area were consistent with historical and current literature. Many scholars have purported that social support or a sense of belonging positively supports student learning and retention. Some of the phrases used by students to describe social support were: experience working with others, help staying focused and oriented, fellowship, bringing healthcare students together as a whole, support, decreased stress, and sharing of ideas.

Career Knowledge/Opportunities

Eleven, or 55%, of the healthcare learning community students indicated that career knowledge/opportunities would support their learning and retention at the university. Some of the phrases that the students used to express their viewpoints on learning, retention, and career knowledge/opportunities were: goals/opportunities, knowledge of changes in the field, innovations, gaining experience and training in healthcare, and the ability to obtain information in the healthcare field.

Academic Success

Academic support was indicated as a learning, retention factor by 30% (6) of the students. Although academic success has been shown to be a byproduct of learning communities, academic success generally stems from the social and academic support/bonding that occurs in learning communities. Some of the phrases used to reflect the academic support were: help with courses, study groups, increased pass rate, and more interesting studies.

Networking

Networking was identified as important to personal retention by 25% (5) of the healthcare learning community students. Networking was primarily related to contact with guest speakers and other community partners. Some of the theme phrases used by students relative to the value of networking on learning and retention were: having speakers, knowledge of people, and beneficial information from the community.

Faculty Rapport / Relationship Building

Approximately 20% (4) of the healthcare learning community students identified faculty rapport/relationship building as important to their learning and retention at the university. Some of the phrases used by the students for the faculty rapport/relationship building theme were: communication with faculty, student/faculty relationships, and building relationships with faculty.

Discussion

The range of themed areas reflected the realization of the healthcare learning community students that multiple factors are needed to enhance learning and student retention. However, the greatest emphasis was placed on social support. Students appeared to value opportunities for collaborative exchanges, especially with other students in the healthcare learning community. One student even mentioned the reduction of stress due to involvement with other students in the learning community. It appears that the feeling of belonging and support was central to all of the multidimensional theme areas for student retention. The concept of social involvement to enhance learning and retention has been widely studied and corroborated in the literature (Astin, 1975; Pascarella & Terenzini, 1980). Vygotsky also believed that learning was a social activity (Horton, 2008).

The learning community...seems to be an important link in the ever-growing student learning and retention puzzle.

Several other factors were related to learning and retention by the healthcare learning community students. The theme factors, in descending frequency were as follows: career knowledge/opportunities, academic support, networking and finally faculty rapport/relationship building. Faculty rapport/relationship building may have been viewed and mentioned in less frequency as peer interaction and problem-solving were a major component of the healthcare learning community. The role of faculty, while important, seemed to take a background role relative to the overall teaching and learning process. The dynamics of learning and retention seemed to have been reflected in the students' need for social supports; career knowledge/ opportunities; academic support, networking and faculty rapport/relationship building. Selected literature has shown that students who participate in learning communities have higher grades and are more satisfied with their educational experience, feel deep academic connections to faculty and peers, and make healthier educational choices than students in traditional courses (Gabelnick, MacGregor, Matthews & Smith, 1990).

Though more of a case study yielding personal perspectives, students in the healthcare learning community were candid about factors that they personally value and need to remain and persist in an academic university. The challenge, however, remains for institutions of higher learning to implement models of social interaction and related student success factors into the curriculum. The traditional lecture format has left retention statistics virtually unchanged for decades. Thus, the door is open for new models of teaching and learning, with an aim to facilitate student understanding and to retain students. The learning community, despite its multivariate design and functions, seems to be an important link in the ever-

growing student learning and retention puzzle. The camaraderie of co-enrollment may help students stay in school longer, and learning communities can offer more curricular coherence, integrative high quality learning, and collaborative knowledge relevant to living in a complex and diverse world (Lardner & Malnarich, 2008).

Additional assessments, including formative and process evaluations, were conducted throughout the 10-month duration of the healthcare learning community. Other data was also collected and analyzed relative to student learning, retention, program benefits, effective teaching methodologies, professional development, teamwork, and quality healthcare management. The results will also be compared to this preliminary case study in the future. Likewise, Vygotsky's theory of cognitive development serves as a mechanism to rethink current classroom practices and align the teaching and learning process with collaborative transformative practices.

References

- ACT. (2010). *What works in student retention. 4th National Survey. Public four-year colleges and universities Report*. Retrieved from <http://www.act.org/site.html>
- Andrade, M.S. (2007). Learning communities: Examining positive outcomes. *Journal of College Student Retention: Research, Theory and Practice*, 9(1), 1-20.
- Astin, A. (1975). *Preventing students from dropping out*. San Francisco, CA: Jossey-Bass.
- Baker, S., & Pomerantz, N. (2000). Impact of learning communities on retention at a metropolitan university. *Journal of College Student Retention: Research, Theory and Practice*, 2(2), 115-126.
- Browne, M. N., & Minnick, J. (2005). The unnecessary tension between learning communities and intellectual growth. *College Student Journal*, 39(4), 775.
- Brickman, D. (2010). How to improve student retention in community colleges. How to do things.com. Retrieved from <http://www.howtodothings.com/education/a3836-how-to-improve-student-retention-in-community-colleges.html>
- Cross, K. P. (1998). Why learning communities? Why now? *About Campus*, 3(3), 4-11.
- Ferguson, K., Wolter, E., Yarbrough, D., Carline, J., & Krupat, E. (2009). Defining and describing medical learning communities: Results of a national survey. *Academic Medicine*, 84(11), 1549-1556.
- Gabelnick, F., MacGregor, J., Matthews, R. S., & Smith, B. L. (1990). *Learning communities: Creating connections among students, faculty and disciplines*. San Francisco, CA: Jossey-Bass.
- Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin.
- Horton, S. (2008). Reflections from Lev goes to college: Reflections from Vygotsky's ideas in higher education. *The International Journal of Learning*, 15(4), 13-18.
- Lardner, E., & Malnarich, G. (2008). A new era in learning community work: Why the pedagogy of intentional integration matters. *Change: The Magazine for Higher Learning*, 40(4), 30-37.
- Mendelson, M. (2006). Confessions of a learning community coordinator. *Liberal Education-Washington DC-*, 92(3), 56 – 58.
- Miller, R. (2011). *Vygotsky in perspective*. New York, NY: Cambridge University Press.
- Mintrop, H. (2001). Educating students to teach in a constructivist way – Can it all be done? *Teachers College Record*, 103(2), 207-239.

Moore, W. (2010). My mind exploded: Intellectual development as a critical framework for understanding and assessing collaborative learning. Retrieved from <http://www.evergreen.edu/washcent/er/resources/acl/iia.html>

Nayan, S., Shafie, L. A., Mansor, M. Maesin, A., & Osman, N. (2010). The practice of collaborative learning among lecturers in Malaysia. *Management Science and Engineering, 4*(1), 62-70.

Pascarella, E., & Terenzini, P. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *Journal of Higher Education, 51*, 60–75.

Smith, B. L., & McGregor, J. (1992). What is collaborative learning? In A. Goodsell, M. Maher, & V. Tinto (Eds.), *Collaborative Learning: A Sourcebook for Higher Education*. The Pennsylvania State University: National Center on Postsecondary Teaching, Learning and Assessment.

Stetsenko, A. (2010). Teaching – learning and development as activist projects of historical becoming: Expanding Vygotsky's approach to pedagogy. *Pedagogies: An International Journal, 5*(1), 6-16.

Tinto, V. (1973). College proximity and rates of college attendance. *American Education Research Journal, 10*, 277-293.

Tinto, V. (1998). Learning communities: Building gateways to student success. *The National Teaching and Learning Forum, 7*(4), 1-11.

Tinto, V. (2000). What have we learned about the impact of learning communities on students? *Assessment Update, 12*(2), 1-2.

Tinto, V. (2001). Rethinking the first year of college. *Higher Education Monograph Series*, Syracuse University.

Tinto, V., & Engstrom, C. (2002). Learning communities and the undergraduate curriculum. *Encyclopedia of Education, 4*, 1452-1457.

Upcraft, M., Gardner, J., & Barefoot, D. (2005). *Challenge and support: Creating climates for first-year student success*. San Francisco, CA: Jossey-Bass.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Selix, C., & Willen, L. (2010). Community colleges try innovative ways to improve retention, completion and transfer rates. Retrieved from http://www.huffingtonpost.com/liz-willen/community-colleges-try-in_b_707739.html

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Using the Comfortability-in-Learning Scale to Enhance Positive Classroom Learning Environments

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A goal of higher education is to advance learning. This study examined the role “comfortability” plays in that process. Defined as the level of comfort students experience with their classmates, instructor, and course material, comfortability addresses how secure a student feels in the classroom. Comfortability was assessed multiple times during one semester with undergraduate students and found student comfortability significantly increased across the course of the semester and significantly predicted affective learning. These findings suggest the importance of the classroom environment in the learning process and support the need for faculty to consider “non-academic” factors in addition to course content.

Constructs such as engagement, community, relatedness, and connection are common in higher education. Multiple studies have demonstrated when students were more engaged, aware, and comfortable with their environments they would become more active in their learning (Tinnesz, Ahuna, & Kiener, 2006), had a positive perception of learning and performance (McKinney, McKinney, Franiuk, & Schweitzer, 2006) and persisted until graduation (Cheng, 2004; Harris, 2003). There are at least two underlying themes among these constructs that support positive learning environments, intellectual safety and affective learning. Schrader (2004) defined intellectual safety as a learning atmosphere in which students feel secure in challenging and strengthening ideas to deepen learning. Affective learning examines student intrinsic and extrinsic motivation, methods students use to interact with content, and how students receive, respond to, and integrate information to form an intellectual disposition (Delcourt, Cornell, & Goldberg, 2007; Holt & Hannon, 2006). It is feasible to believe a further examination of the interaction of intellectual safety or learning environment and affective learning will lead to additional insights on emphasizing student learning.

Rodríguez, Plax, and Kearney (1996) sought to analyze the indirect relationship between instructor nonverbal immediacy and cognitive learning; specifically examining if affective learning or student motivation had a more significant impact on cognitive learning. Examples of instructor nonverbal immediacy include: smiling, eye contact, and forward body lean. The researchers used a correlational design with path coefficients to determine which model (motivational or affective learning) had a greater fit to predict cognitive learning. The results of the study found when instructors displayed immediacy both student motivation and affective learning predicted cognitive learning; however, the affective learning model produced less error and thus had more theoretical relevance (Rodríguez et al., 1996). In addition to nonverbal instructor communication predicting affective learning, Henning (2010) examined the impact communicative style and instructor credibility had on student affective learning. Communicative style refers to how an instructor initiates, adapts, and responds to communication of others; whereas, instructor credibility is student evaluation and

attitude towards his or her instructor. The study employed 279 undergraduates and found communicative style and instructor credibility predicted affective learning. The findings from these studies expand the importance of verbal and nonverbal communication on learning environments and affective learning.

Sidelinger, Bolen, Frisby, and McMullen (2011) investigated how negative instructor behaviors (being rude, insulting or sarcastic) impacted student connectedness and affective learning with 187 undergraduate communication students. The authors found when students developed a sense of connection to each other, negative instructor behaviors did not alter student course engagement. However, instructor misbehaviors did inhibit affective learning toward the instructor and course content. Student connectedness and affective learning was also examined by Johnson (2009) with 197 undergraduate students. The researcher found when students perceived they were connected with each other it predicted affective learning, specifically intent to enroll in similar courses and to engage in ideas discussed in the course. This research speaks to the importance of students creating an environment to benefit their learning and how their engagement can override negative instructional behaviors.

...when students perceived instructors to exhibit positive communication behaviors they had more positive student communication behaviors and outcomes.

Similarly, instructors can also positively impact the learning environment. Mazer and Hunt (2008) studied the effects of instructor positive and negative slang on affective learning, motivation, and classroom climate with 175 undergraduates. Positive slang was informal language used to engage with students whereas negative slang was verbal obscenities deemed inappropriate by students. The researchers found positive and no slang communication had similar effects on affective learning and motivation, but negative slang had a significant negative impact on classroom climate. Goodboy and Myers (2008) investigated how instructor communication behaviors impacted cognitive and affective learning. Positive communication behaviors include eye contact, head nodding, and acknowledging responses; whereas negative communication behaviors include interrupting, avoiding, and discrediting answers. The researchers found when students perceived instructors to exhibit positive communication behaviors they had more positive student communication behaviors and learning outcomes. Adding to the students' role in creating positive learning environments, instructor verbal and nonverbal behaviors can be emphasized to benefit learning.

Arguably, increasing a sense of community and affective learning may have significant importance in professional programs where students are taught to create therapeutic environments to benefit practice. Moreover, Shulman described professional education as more than an academic process and stated,

(T)o become a professional, one must learn not only to think in certain ways but also to perform particular skills, and to practice or act in ways consistent with the norms, values, and conventions of the profession. (2004, pp. 67-68)

In other words, affective learning has an important role in developing a professional worldview and disposition.

Based on this evidence it would be difficult to ignore the role positive learning environments have on higher education as a means of increasing student affective learning. As a result it would be advantageous for instructors to investigate individual courses and programs to maximize the potential of positive learning environments. However, for many faculty members, studying one's teaching to improve learning is a new endeavor (Huber & Hutchings, 2005).

The scholarship of teaching and learning (SoTL) is a natural fit as a philosophy for instructors to study their teaching, student learning, and documenting outcomes. SoTL views the classroom as a research site and calls for

rigorous methodology to review and improve teaching and student learning (Huber & Hutchings, 2005).

As with other forms of scholarship, SoTL requires a question to be investigated, data to be collected and analyzed, and findings to be implemented. An equally important SoTL theme is making quality teaching public for others to critique and build theory (Huber & Hutchings, 2005).

In an attempt to expand the value of identifying positive learning environments, the Comfortability in Learning Survey (CLS) was created (Kiener, Green, Ahuna, & McCluskey, 2013). Comfortability emerged as a core category in a grounded theory study designed to better understand how counseling students learn and is conceptualized as a dual process students and instructor employ to form a positive learning environment (Kiener, 2007). Comfortability is defined as the level of comfort students experience with their classmates, instructor, and course material. Moreover, comfortability is related to student self-efficacy in their learning and ability to complete coursework. When students and instructors establish comfortability students have the capability to become more active in their learning and integrate information that may have been perceived as difficult or challenging prior to the start of the course (Kiener et al., 2013). Allowing students to provide feedback regarding how they best learn and in creating assignments is one avenue to increase the capacity of comfortability.

An assumption with the CLS is when students are asked to overtly rate their comfortability they have the potential to become more aware and active in their learning. One goal in the creation of the CLS was to provide a tool of ongoing assessment that instructors could administer in their own classrooms with resulting data that could be used to improve and document student learning.

Perhaps the greatest potential of the CLS is administering it multiple times in a single course or across multiple courses in a program to measure the development (or non-development) of comfortability. Based on the results of each administration, instructors can make pedagogical changes to improve teaching and learning. In addition, results can be shared with students for another opportunity for them to “see” their comfortability in learning and provide feedback to students and instructor.

Thus, the purpose of this study was to extend the utility of the CLS as a program measure. By administering the CLS multiple times in a professional program, data can be analyzed to better collectively gauge students’ comfortability in learning. A secondary purpose was to investigate if scores on the CLS could predict affective learning. Increasing affective learning in professional programs is instrumental because students will not only have to think but also act and behave as professionals. Therefore, the research questions for this study were: 1) Would comfortability significantly increase over the course of the semester; 2) Would scores on the CLS significantly predict affective learning toward content and instructor; and 3) Would questions seven, 15, and 16 on the CLS significantly increase over the course of the semester. The three questions were: “The instructor in this class uses assessment procedures that are appropriate to demonstrate student learning”; “I use information from this class in other situations (other classes or field experiences)”; and “Material in this class that initially may have seemed challenging has become more understandable over time.” These questions were chosen because of the potential to provide evidence of student comfortability with thinking about and applying course content.

Methodology

A quantitative methodology was used to answer the research questions. This methodology was appropriate because it allowed the researchers to measure the construct under investigation and demonstrates the potential usefulness of collecting and analyzing multiple administrations of the CLS throughout the semester to improve the learning environment.

Participants & Courses

Four faculty members in the School of Health Professions agreed to distribute the CLS to their undergraduate students during the spring 2013 semester. Out of 46 students in five courses, a total of 26 individual students consented to participate in the study. Twelve students were enrolled in more than one course and 14 students were enrolled in one course. Three students were enrolled in four courses, two students were enrolled in three courses, and seven students were enrolled in two courses. All of the students were undergraduates from a private Midwestern liberal arts university. Thirty-three students were majors in the rehabilitation services program and 13 were non-rehabilitation services majors. There were a total of 18 students in the rehabilitation services' major. The other majors included psychology, occupational therapy, and students who were undeclared. The average age of the students was 22 with a range from 17- 41. All of the students were female except for one, and all students were Caucasian except for one who identified as African American. These demographics were representative of students in this program at this university. Seventeen students had prior experience with their instructor. All of the courses chosen for this study were in the rehabilitation services program and were taught by full-time faculty. Three of the faculty members taught one course and one faculty member taught two courses. The courses consisted of one 200 level, one 300 level, and three 400 level courses. Rehabilitation services is a human service profession and rehabilitation service providers work with individuals with disabilities to secure employment, live independently, and gain full inclusion into society.

Procedure & Measures

In weeks four, eight, and 12 of the semester participants completed the Comfortability in Learning Scale (Kiener et al., 2013) and the Instructional Affect Assessment Instrument (McCroskey, 1994). The CLS is a 20-item survey asking students to rate their comfort with their classmates, instructor, and course content. Questions are answered on a five point Likert scale ranging from totally disagree (1) to totally agree (5). Sample questions include: "Classmates in this class often help each other in understanding difficult material"; "The instructor has created a respectful environment to share ideas in this class"; and "Material in this class that initially may have seemed challenging has become more understandable over time". The CLS has more than adequate reliability; Cronbach's Alpha range from .863-.933 and split half coefficients range from .811-.908. The CLS has a criterion validity coefficient of .737 and strong face and content validity (Kiener et al., 2013). The Instructional Affect Assessment Instrument has two eight-item scales measuring affect for content and affect for instructor. Reliability coefficients range from .85-.90 and has sound face and predictive validity (McCroskey, 1994).

After each administration, data were analyzed by the first author and presented to the other participating instructors as a method of ongoing assessment. Group and individual data were presented and individual course data were only seen by the first author and by the instructor teaching the course. The first author was also available to discuss the results individually with each instructor. As a method to increase comfortability, the first author shared the results of his survey at each administration with his students and allowed them to ask questions and make their own interpretations of the data to help improve teaching and learning.

Results

To address the first research question, would comfortability increase over the course of the semester, a repeated measures ANOVA was conducted on the CLS across the three time periods. Results indicated a significant increase from week 1 to week 4, $F(2, 54) = 4.23, p = .02, \eta^2 = .135$. A follow-up analysis showed an increase in comfortability from week four ($M = 4.24, SD = .51$) to week eight ($M =$

4.37, SD = .50), and from week four to week 12 (M = 4.42, SD = .60), but no significant difference between week eight and week 12.

To determine if comfortability predicted affective learning toward content and instructor, correlations were initially analyzed to determine if a relationship existed. The researchers examined the final time period (12 Weeks) as the second research question was interested in determining whether comfortability, as it developed over the course of a semester, predicted affective learning at the end of the class. CLS was significantly correlated with both affective learning toward content ($r(39) = .709, p < .001$), and toward instructor ($r(39) = .750, p < .001$). Simple linear regression analyses indicated significant prediction of affective content ($t = 6.12, p < .001$), accounting for 50.3% of the overall variance. CLS also significantly predicted affect toward instructor, ($t = 6.89$), $p < .001$, accounting for 56.2% of the overall variance.

Repeated measures ANOVAs were conducted on the three individual CLS questions to determine if any increase in frequency occurred during the semester. Results indicated very little change in these specific questions. Any differences over the semester for items seven (The instructor in this class uses assessment procedures that are appropriate to demonstrate student learning) and 15 (I use information from this class in other situations [other classes or field experiences]) were clearly not significant, $F's < 1.0$. Item 16 (Material in this class that initially may have seemed challenging has become more understandable over time.) did show a marginal increase, $F(2, 54) = 2.74, p = .074, \eta^2 = .092$. Follow-up analyses indicated the only significant increase occurred between week 4 (M = 3.96, SD = .74) and week 12 (M = 4.25, SD = .84) for question 16.

Discussion

The purpose of this study was to expand the use of the CLS by administering it multiple times throughout a semester to better track factors that contribute to comfortability and affective learning. By assessing the CLS multiple times and analyzing the data it provided an opportunity for instructors to have a method of ongoing assessment to monitor their courses, increase student awareness of their learning environment, and make changes to enhance learning. By examining multiple courses within one program it allowed for a more comprehensive assessment of the program's comfortability and affective learning.

The results indicated that comfortability did significantly increase over the course of the semester; pointing to the potential for students and instructors to overtly implement strategies to monitor and enhance the learning environment. When students have a more active role in their learning they have the ability to move from passive recipients to dynamic consumers of knowledge (Tinnesz, Ahuna, & Kiener, 2006). Students' perception of comfortability did significantly predict affective learning (affect for instructor and affect for content). It is possible when students increase their affective learning they are developing learning characteristics such as enthusiasm, persistence, and curiosity (Ahuna & Tinnesz, 2006). Moreover, because affective learning deals with attaining positive attitudes toward a teacher and or subject, it is plausible to believe students were developing an increased mindset toward their profession (Rodriguez et al., 1996).

As for the third research question, two out of the three individual questions (seven & 15) did not show a significant increase through the semester and the remaining question (17) had a significant increase only between weeks four and 12. A closer examination of all the means over the administrations indicate a low mean of 3.97 (question six first administration) and a high mean of 4.37 (question 15 first administration). Based on these scores, it is feasible to conclude students felt

When students have a more active role in their learning they have the ability to move from passive recipients to dynamic consumers of knowledge.

comfortable throughout the semester with classmates helping each other with difficult material, using information in other situations, and difficult material becoming more understandable over time. In total, these results indicate the benefit of using an assessment, such as the CLS, as a means of ongoing assessment to monitor the learning environment and inform teaching and student learning.

Future Research & Limitations of the Study

Additional research would benefit from further examination of demographic differences between students and instructors. For example, will comfortability develop differently for non-majors and students without prior experience with instructors compared to students who are majors and with students who have prior experience with instructors? Repeating this study with multiple programs may reveal differences in how programs view learning environments as a means to increase learning. It would also be interesting to investigate how instructors could implement changes to courses based on data from each administration of the CLS. Adding open ended questions to the CLS for students and instructors may shed additional insight on learning. Students could be asked to describe how their comfortability with classmates, instructor, and course content changed throughout the semester and instructors could be asked to describe how they used the data from the CLS to inform their teaching.

Teaching is an art as opposed to a science.

Although the results are representative of the programs' students, and possibly other human services programs at small liberal arts institutions, the small sample size does decrease the study's external validity to a broader population. Increasing the diversity of the students, programs, and institutions would help generalize the value of using the CLS as a learning outcome measure. In addition, without a comparison group, it is difficult to state for certain that the effects were the result of the program's sense of comfortability and not another external factor causing the change.

Application to a Broader Audience

Adding to the milieu of higher education is the rising demand for institutions to be accountable and demonstrate student learning outcomes. Accrediting agencies are requiring institutions to do a better job of identifying, tracking, and demonstrating student outcomes. Institutions that implement a culture of assessment and use data to improve teaching and learning will have a distinct advantage in attracting and graduating students.

Regardless of academic area, these findings exemplify the positive benefit of creating a secure classroom environment. Particularly in health and human service fields in which students will become future professionals servicing the community, it is imperative to maximize learning. This research shows that increased comfortability leads to increased affective learning. As a result, students get more from their classes and the community gets more from its professionals. Teaching is an art as opposed to a science. Instructors at all levels can continually improve their practice, and a new attention to comfortability is one facet that can be addressed.

Conclusion

This study sought to better understand if student perception of a positive learning environment could be developed in a rehabilitation services program over the course of a semester and if a positive learning environment could predict affective learning. The results indicated a sense of comfortability did increase in the program, and comfortability did predict affective learning. Increasing affective learning for students in professional programs has the potential to indicate students are transitioning to their new professional roles. One of the strengths of the study

is embracing ongoing assessment to improve instruction and student learning. When instructors collect data on their teaching and student learning they have the ability to better demonstrate they are achieving student learning outcomes.

References

- Ahuna, K. H., & Tinnesz, C. G. (2006). *Methods of inquiry applied critical thinking* (2nd ed.). Dubuque, IA: Kendall/Hunt.
- Cheng, D. X. (2004). Students' sense of campus community: What it means, and what to do about it. *NASPA Journal*, 41, 216-234.
- Delcourt, M. A. D., Cornell, D. G., & Goldberg, M. D. (2007). Cognitive and affective learning outcomes of gifted elementary school students. *The Gifted Child Quarterly*, 51, 259-282.
- Goodboy, A. K., & Myers, S. A. (2008). The effect of teacher confirmation on student communication and learning outcome. *Communication Education*, 57, 153-179.
- Harris, B. A. (2003). The power of creating a spiritual learning community. *Adult Learning*, 12, 22-23.
- Henning, Z. (2010). Teaching with style to manage students perceptions: The effects of socio-communicative style and teacher credibility on student affective learning. *Communication Research Reports*, 27, 58-67.
- Holt, B. J., & Hannon, J. (2006). Teaching-learning in the affective domain. *Strategies*, 20, 11-13.
- Huber, M. T., & Hutchings, P. (2005). *The advancement of learning building the teaching commons*. San Francisco, California: Jossey-Bass.
- Johnson, D. I. (2009). Connected classroom climate: A validity study. *Communication Research Reports*, 26, 146-157.
- Kiener, M. S. (2007). Scholarship of teaching in rehabilitation counseling practicum. *Rehabilitation Education*, 21, 169-178.
- Kiener, M. S., Green, P., Ahuna, K., & McCluskey, J. (2013). Creation of the comfortability in learning scale. *Transformative Dialogue: Teaching and Learning Journal*, 6(3). Retrieved from <http://www.kpu.ca/td/past-issues/6-3>
- Mazer, J.P., & Hunt, S. K. (2008). The effects of instructor use of positive and negative slang on student motivation, affective learning, and classroom climate. *Communication Research Reports*, 25, 44-55.
- McCroskey, J.C. (1994). Assessment of affect towards communication and affect toward instruction in communication. In S. Morreale & M. Brooks (Eds.), *1994 SCA summer conference proceedings and prepared remarks: Assessing college students competence in speech communication*. Annandale, VA: Speech Communication Association.
- McKinney, J. P., McKinney, K. G., Franiuk, R., & Schweitzer, J. (2006). The college classroom as a community. *College Teaching*, 54, 281-284.
- Rodriguez, J. I., Plax, T. G., & Kearney, P. (1996). Clarifying the relationship between teacher nonverbal immediacy and student cognitive learning: Affective learning as the central causal mediator. *Communication Education*, 45(4), 293-305.
- Schrader, D. E. (2004). Intellectual safety, moral atmosphere and epistemology in college classrooms. *Journal of Adult Development*, 11, 87-101.

Shulman, L. S. (2004). *Teaching as community property essays on higher education*. San Francisco, CA: Jossey-Bass.

Sidelinger, R. J., Bolen, D. M., Frisby, B. N., & McMullen A. L. (2011). When instructors misbehave: An examination of student-to-student connectedness as a mediator in the college classroom. *Communication Education, 60*, 340-361.

Tinnesz, C. G., Ahuna, K. H., & Kiener, M. (2006). Toward college success: Internalizing active and dynamic strategies. *College Teaching, 54*, 302-306.

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Leading the Charge for SoTL – Embracing Collaboration

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The scholarship of teaching and learning (SoTL) enables colleges and universities to assess student learning and measure the outcomes by engaging in meaningful research, and to disseminate this research. The objective of this paper is to give a snapshot of and assess the current thinking behind this scholarship by presenting examples of SoTL, and to provide insights into the measurement of SoTL research by faculty members. By presenting a carefully crafted research agenda in SoTL, colleges and universities can disseminate this research as a means of providing useful assessments of student learning and measurements of relevant outcomes.

*"Education is the most powerful weapon which you can use to change the world."
Nelson Mandela*

Any educational operation can be deemed inefficient whenever faculty capacity goes unused, when policies dictate more restrictions than necessary to accomplish the work at hand, and when drivers at the decision-making wheel emphasize outdated and inefficient methods or models instead of serving faculty and student needs. Knowing what to look for is important, since there is usually warning signs of inefficiency that can also point to opportunities for cost savings and productivity increase.

The objective of this paper is to describe how a cross-disciplinary program promoting the scholarship of teaching and learning at colleges can provide value and richness. The division of this paper is as follows: Section 1 provides an overview of past and present practices; Section 2 provides a review of the literature addressing the promotion of cross-disciplinary research and its benefits; Section 3 provides examples of cross-disciplinary discourse in scholarly of teaching and learning activities; Section 4 provides measurement issues in SoTL research; and Section 5 concludes the paper with questions about the future of SoTL.

At many college campuses, students often express dismay about how academic-specific research impacts their learning. Boyer (1990), as well as Glassick, Huber, and Maeroff (1997) started promoting a shift from the traditional theme of a university to a new paradigm for recognizing the full range of scholarly activity by university faculty. As a consequence, many universities have created an environment that promotes the values of scholarship of teaching and learning. SoTL provides value-added, discipline-specific research, which most academicians pursue. Throughout many academic departments, it is now common to take an active role in the scholarship of teaching; the emergence of campus conversations among faculty members is leading to a promulgation of interests regarding teaching and learning practices that enhance learning based on the evidence of novel teaching practices.

Section 1: Overview

The Boyer Model, implemented as a major form of promoting faculty scholarship and used as a method of evaluation of faculty at many universities since its inception in the early 1990s (O'Meara, 2005), is being challenged by new ideas. The model was not welcomed by all academicians and created controversy by promoting faculty scholarship. Richlin (2001) alleged that SoTL is not clearly

defined, and many members of academia view SoTL as an illegitimate form of research, claiming it ought not to be pursued as a serious form of research (Cunsolo, Elrick, Middleton & Roy, 1996; Kreber & Cranton, 2000; Ziolkowski, 1996). McKinney (2006) concluded that the SoTL is not linked to improved teaching practices at universities as originally proclaimed and intended. Despite diverse perspectives by academicians about SoTL, it has blossomed extensively in recent years, and still serves as a forum for faculty scholarship in congruence with the traditional research discipline.

In this paper, the term cross-disciplinary refers to faculty from different subject areas investigating and promoting more effective ways of teaching and learning. Cross-disciplinary efforts in promoting the scholarship of teaching and learning are crucial since they enhance the teaching and learning process, thereby creating avenues for faculty to understand how learning across the curriculum is possible. We need to ask ourselves, What are the structural variables in today's education, and how can we achieve educational sustainability? We can apply cross-disciplinary research in SoTL to: a) minimize toxic situations, b) enhance a prosocial environment, and c) create meaningful steps for faculty and students alike. The face of higher education is changing and attracts more students from diverse backgrounds with different individualized cognitive needs. Because of these changes in higher education, educators must carefully assess their students in order to align the appropriate educational content and meet learning outcomes (Cantor, 1997). Caffarella and Barnett (1994) state the need to clearly identify the course objectives to the students early on, while emphasizing the content of the course. In addition, highlighting the contributions of student's work ought to be emphasized in the course design. That is, how can students contribute to the course by incorporating their perspectives? The goal in course development is to have students depend less on the guidance of the instructors but instead refine their comprehension of the course material via engaging in discussions with other students while the instructor serves as facilitator in the classroom (Benander, 2009). Shifting power from the instructor to the student will presumably generate positive consequences such as increasing students' skills, instead of the sole focus being on grades. Additionally, this shift will create an inclusive classroom that respects all backgrounds and prior knowledge. A good way to evaluate the accuracy of such actions and to uncover problem areas is to track planned versus actual deliverables.

Shifting power from the instructor to the student will presumably generate positive consequences such as increasing students' skills, instead of the sole focus being on grades.

We need more engagement of a broader type versus engagement as usual. Why do we produce content? Because we act as curators of that particular content, we can disperse this content to others. Educational ways change; we have to measure to learn in that environment, and we need to focus on what we understand and maximize that understanding. We need to create unique content and focus on the best distribution channels while simultaneously recognizing that these channels and tools (applications) come and go. For example, a recent study by Oxford predicts that almost 50 percent of US jobs will be replaced by robots and AI (Artificial Intelligence) over the next 20 years. For people involved in scholarly teaching and learning activities to understand these future trends is important, and represents an opportunity to reinvent and overhaul the past and present systems. It is the tsunami of education; stay on top of it, or be washed away.

Section 2: Examples of SoTL Literature Review

One of the main characteristics of the SoTL domain is that SoTL steers faculty toward discussion, peer review, and research to improve teaching strategies. That is, the SoTL movement tends to focus more heavily on the faculty. One of the main deliverables of scholarly research from SoTL is a comprehensive literature

review. One of the far-reaching developments in SoTL is the institutional culture supporting SoTL by the faculty actually producing it (Cox, 2003; Kreber, 2001; Theall & Centra, 2001). This section presents more examples of SoTL that do not only focus on discussions, peer review, and research, resulting in a review of the literature (Albers, 2008; Waterman et al., 2010).

Tenenberg and Wang (2005) present an example about a concern among faculty in computer science at both two-year and four-year institutions to ensure a smooth transition for students between institutions. They describe a collaborative effort in bridging these institutional divides by opening classrooms to other faculty members as a means to critically examine the pedagogical methods and assess student outcomes from this learning. They examine the student work submitted, looking for student learning, and this critical examination of student learning is achieved through the development of course portfolios for each course that is taught. The portfolios are used to examine different courses within a discipline and curricula across the institutions. From this introspection, they can obtain lessons about the assessment of their teaching in their courses and the use of course portfolios as a means for disseminating knowledge and developing new practices to promote learning.

Tenenberg and Wang's (2005) approach holds uniform in the classroom the variances in educational backgrounds, learning styles, aptitudes, and time/energy constraints. As a consequence, many educators design classroom activities by "aiming down the middle," which is not necessarily the best strategy to encourage strong pedagogy. In fact, League (2008) states many academicians would simply disregard the lower half of a class rather than risk extinguishing the enthusiasm of the best and brightest by moving too slowly in the presentation of the course material. To improve pedagogy resulting in improved student outcomes that League (2008) developed in an undergraduate course in artificial intelligence, a workbook-style of lab assignments was developed in accordance with Bloom's taxonomy to cover all aptitudes and learning styles. The development of the workbook style lab assignments would create a disciplinary commons that includes a repository of source code, lecture notes, homework exercises, and additional learning activities. Course portfolios as espoused by Tenenberg and Wang (2005) provide an important model for meeting the criteria for SoTL work to promote interdisciplinary teaching, and are able to document the complex processes by which faculty and students engage in interdisciplinary problem-solving (Bernstein, Burnett, Goodburn, & Savory, 2006).

Course portfolios...provide an important model for meeting the criteria for SoTL work to promote interdisciplinary teaching...

Wilner (2009) describes an ongoing faculty development project called BRIDGE (Bridging Research, Instruction, and Discipline-Grounded Epistemologies) that draws upon the insights of Angelo and Cross (1993), who stated that effective classroom techniques also include effective teaching strategies, and that these strategies differ from institutional program assessment because of their focus on specific teaching environments. The success of BRIDGE focuses on the simultaneity of the discipline-based classroom research and multi-disciplinary workshops. This two-pronged approach allows faculty to connect pedagogy with the epistemologies that underlie their own training (the former) while the latter approach confers a number of advantages that enhance both faculty satisfaction and leading to successful classroom research. The main thrust of BRIDGE is the "going public" approach at the end of the academic year, in which faculty share their methods and find and solicit peer review. The solicitation of peer review confirms the scholarly nature of their work and provides motivation for other educators to build upon these approaches.

Jaafar and Baishanski (2012) developed an integrative approach to learning in introductory STEM (Science, Technology, Engineering, and Mathematics) courses and related courses. More specifically, they applied their case study

approach in a college algebra course by incorporating cross-curricular skills, and this approach measures the effectiveness of course outcomes by analyzing student work on the project and responses to surveys throughout the course. The results find the assignment affects students' mastery of specific quantitative skills positively, their perceptions of learning are improved, and they develop a stronger appreciation for the relevance of studying mathematics, especially at the introductory level. Because of the uniqueness of introductory courses, Jaafar and Baishanski carefully crafted suggested guidelines for designing course activities with the objective to teach the whole student in these courses.

Waterman et al. (2010) provided a collaborative example of the Scholarship of Teaching and Learning Fellows Program at Southeast Missouri State University. This program enrolls an annual cohort of 10 faculty fellows to evaluate, through individual research projects, the effectiveness of their teaching on student learning of at least two of the university's general education courses. This program is meant to be an interactive collaborative peer consultation. The colleagues meet monthly to address the research questions and consult with their peers as they progress through their research as applied to their specific research projects. At the conclusion of the academic year, these Fellows present their research to the university community. An analysis of three cohorts from the program showed that 66% of the projects had coherent outcomes that showed measurable impacts on student learning. More specifically, these surveyed Fellows impacted over 4,500 students in 100 courses. Most of the projects emphasized a new teaching approach, new curriculum materials, integrated applications, and active learning. Some of the Fellows presented their research at professional conferences and seven of them published their research results in scientifically reviewed journals. The feedback by the Fellows revealed this program as a positive influence on their teaching and research.

Section 3: Examples of cross-disciplinary discourse of the SoTL

Because of some of the difficulties involved in communicating among cross-disciplinary programs, it may be beneficial to look at tools such as information mapping. Information mapping is based on how the mind processes and retrieves memorized and read information. It is an alternative to conventional reading and provides an integrated set of easy-to-learn-and-understand guidelines and techniques for analyzing user needs. Information mapping organizes the information into manageable blocks or pods that can be maintained and reused, and presents the information in a format that is easy to find and understand.

In addition, do we as faculty and educators need training on root cause analysis? Valuable SoTL knowledge resides with faculty and is contained at a specific point. However, from a cross-disciplinary standpoint, a sense of meaning and shared communication is absent. Critical data and information is not shared, and we have developed a culture of passivity. In most cases, education-specific knowledge is deeply engrained and becomes part of the way things are done, thus becoming an unconscious competence.

Kuh and Ikenberry (2009) created a survey with responses from provosts for the National Institute for Learning Outcomes Assessment aiming to understand student learning assessment. The report stated "Gaining faculty involvement and support remains a major challenge..." Sixty-six percent of provosts at all institutions said more faculty engagement would be helpful, and "about four-fifths of provosts at doctoral research universities reported greater faculty engagement as their number one challenge" (p. 24).

Milton Cox, director of the Center for the Enhancement of Learning and Teaching at Miami, describes Miami University of Ohio as "multi-disciplinary groups of 6 to 15 members...they work collaboratively on nine-month, scholarly programs to enhance teaching and learning" (p. 92). He reports that

the learning communities built high levels of trust through participative decision-making. The ensuing sense of community and the scholarship of teaching and learning provided the social dynamics and the intellectual linkage between theory and practice for successful change management. The capacity building inherent in learning communities fed off itself because successful graduates of the program are now facilitators of subsequent learning communities. (2006, p. 97)

In spite of the changes in universities to encourage more scholarly activities across the curriculum, each discipline has its own unique history and debates in the discipline and the methodological approaches that influence how it is taught, the content of what is taught, to whom, and why it is taught. More specifically, each discipline has its own style of pedagogical approaches, e.g., data analysis, computer programming, and problem sets in the business disciplines. In fact, each discipline's participants can actively engage in discussions related to research and pedagogy via peer-reviewed journals, its various associations, and conference venues that often promote scholarly exchange. However, researchers in SoTL must address discipline-specific issues if they wish to

As interdisciplinary conversations become more common, the spread of SoTL is widening...

be heard in their discipline and interact with their colleagues in a language they understand. That is, not all disciplines speak in the same language, and Joseph Schwab (1964) describes it elegantly as "substantive and syntactic structures," the "conceptions that guide inquiry" and the "pathways of enquiry [scholars] use, what they mean by verified knowledge and how they go about this verification" (p. 25).

Those engaged in SoTL acknowledge these differences across disciplines and do not view them as a barrier to promoting cross-disciplinary discussions, because each discipline has its own unique identity and style that can be woven across disciplines. Members of each discipline have the goal to expand the borders of the discipline by examining new issues that can be researched, and SoTL as its own unique discipline can also examine new issues and further expand the discipline. One of the drawbacks of working across disciplines is that the literature is often obscured because of language, methods, and other specific concerns. However, there has been a growth of forums for cross-disciplinary conversations, and these forums have served as a bridge for the literature across disciplines and greater access to outside members of a discipline. As interdisciplinary conversations become more common, the spread of SoTL is widening into what historian of science Peter Gallison (1997) calls a "trading zone" (781-884). In reference to Gallison, scholars across disciplines could come together and share their ideas, insights, and findings despite the differences in language, methodological approaches, and contemporary discussions.

It can be inferred that scholars in their respective disciplines work with the traditional approaches of teaching and learning and are often not fully aware of those in their disciplines that are actively engaged in SoTL. There is a wave of change occurring in academia today that is attributed to technological changes, greater emphasis on accountability, and other factors that bring teaching and learning into focus. Given the latter, what happens when academicians become more interested in examining more closely their own teaching, assessing student learning, and sharing their findings with their colleagues?

Section 4: Measurement of SoTL Scholarship Activities

One of the major, persistent difficulties in the measurement of SoTL activities is the lack of coherence in the definition of SoTL, and this lack of coherence makes it difficult for the colleges and universities to use this academic discourse towards academic promotion of faculty members (Andresen, 2000; Smith, 2001). The latter poses a challenge for academicians as a legitimate form of academic discourse (Boshier, 2009). Over the years, much effort has been

expended to craft together various interpretations of SoTL through the development of models, e.g., Trigwell, Martin, Benjamin, and Prosser (2000) and Weston and McAlpine (2001). Despite this development, these models have difficulties in institutionalizing the concept of academic discourse of SoTL (Boshier, 2009), and these difficulties have persisted, resulting in a poor understanding of what it means in practice and how to measure the value and impact of SoTL research (Nicholls, 2004).

For scholarship to be valuable to a discipline, there is generally a process to evaluate its quality. Diamond (1993) summarized the criteria that are used to carefully examine scholarly contributions versus other types of academic work. These scholarly contributions require a solid understanding of the literature of the discipline, the scholarship contribution breaks new ground in the discipline, this scholarship can be replicated, the scholarly contribution can be documented, it can be peer-reviewed, and it contributes value-added to the literature of the discipline. The Carnegie Foundation for the Advancement of Teaching proposes a new set of standards for evaluating faculty scholarship contributions (Glassick et al., 1997). In fact, Glassick et al. (1997) posited that the traditional assessment of scholarship contributions that adhered to the Mertonian criteria are no longer applicable because these criteria were developed during a time when faculty members were evaluated exclusively on the advancement of knowledge, not scholarship activities in general. The advent of the Boyer's model in 1990 expanded the role of scholarship, because many faculty members also engage in scholarship activities other than the advancement of knowledge of the discipline. To complement Boyer, Glassick et al. (1997) proposed that all faculty members at a university "must be held to the same standards of scholarly performance" (p. 22). In fact, Glassick et al. (1997) proposed that the following six standards be applied when evaluating faculty scholarly contributions: the scholarship activity should have clear goals, require adequate preparation, make use of the appropriate methods, produce significant results, demonstrate effective presentation, and involve reflective critique (p. 25). However, these standards are not meant to decipher between competent and scholarly teaching. One of the difficulties in measuring SoTL contributions effectively is that SoTL is dominated by the orthodox principles of higher education. Consequently, the approach of these orthodox principles has led to the marginalization of SoTL as a field of study. In fact, the Carnegie Foundation states that SoTL "builds on many past traditions in higher education." These traditions include classroom management, the assessment of student learning, reflective practice, faculty development, peer review of the teaching faculty, and traditional educational research (Hutchings, 2007).

Peer review and the politics of publishing in SoTL seem to dominate. Some academicians have argued that much of the work in SoTL flows from top-down, teacher-centered and, in some cases, discredited approaches to teaching and learning. Because of these preoccupations, those in academic administration and tenure committees would have difficulties carefully assessing the contributions from SoTL. Some academicians are perplexed by this preoccupation because most teaching and most of the students' learning may not occur in formal classrooms. That is, knowledge may not always be acquired in a formal classroom setting. As a result, SoTL may need to expand the concept of learning to include both formal and informal learning settings. Perhaps the most marked notion of SoTL is that there is a general reluctance to define SoTL, and there is no agreement as to what constitutes SoTL. Consequently, leaders like Boyer and others merely turned this task over to market forces or even peer review. That is, if the SoTL scholarship activity passes peer review, then it is considered to be scholarship, and if the work is rejected, then it is not considered to be scholarship (Boshier, 2009).

Many academicians are engaged in scholarly work such as conference presentations, peer review of journal articles, publishing papers, and other scholarly activities. It becomes crucial to examine the institutional impact of the research in SoTL and document what students are learning and how; what they learn from these courses is migrating from student to student and even educational setting to

another educational setting (Huber, 2009). As pointed out by Hutchings (2011), academicians who become engaged in SoTL may also be likely to be engaged in other scholarship activities as related to their respective disciplines. Consequently, this mix of SoTL and discipline-oriented scholarship can be complementary in some ways that are likely to become cumulatively even more significant over time. In fact, the integration of SoTL practice and its findings into pedagogical and curriculum initiatives like introductory courses, learning communities, service learning, undergraduate research, and other programs, could result in widespread improvements in learnings and outcomes that can be substantiated in SoTL. How does one make the latter a more recognizable and viable part of scholarship at a college or university? Some academicians may allude to the fact that research in SoTL is purely qualitative and not substantiated with empirical data to evaluate the effectiveness of the teaching methods and outcomes. That is, in many disciplines, SoTL tends to focus on teachers, teaching strategies, teaching situations, and teaching assignments. In fact, Badley (2003) suggests there is the challenge of increasing the emphasis of this work on learning. To substantiate further, according to McKinney (2006), teachers and teaching strategies, situations, and assignments are all worthy topics to examine in detail, but the research in these latter topics needs to focus more on student outcomes and affective and cognitive processes.

Section 5: What is the Future of SoTL?

It is quite possible that colleges and universities may need to provide evidence of learning outcomes from their academic programs. Because of the requirements of these outcomes, strong research design from SoTL could serve as a prerequisite of providing the effectiveness of this learning. Accountability is not a new concept in higher education, and there is a greater push for showing accountability from colleges and universities. Secretary of Education Margaret Spellings convened the Commission on the Future of Higher Education, and the primordial conclusion from this report (the Spellings Report) revealed the importance of assessment and accountability. In fact, this report did not recommend holding universities directly accountable, but rather supported the ideal of improved quality and accountability in higher education.

We believe that improved accountability is vital to ensuring the success of all the other reforms we propose...Student achievement, which is inextricably connected to institutional success, must be measured by institutions on a "value-added" basis that takes into account students' academic baseline when assessing their results. This information should be made available to students, and reported publicly in aggregate form to provide consumers and policymakers an accessible, understandable way to measure the relative effectiveness of different colleges and universities. (Spellings report, p. 4)

Hutchings, Huber, and Ciccone (2011) argued in favor of reconsidering the scope of SoTL, believing it to be a critical set of principles and practices in achieving institutional goals for the betterment of students' achievements. In response to calls for enhanced quality in higher education and greater accountability, some states may legislate broad testing requirements for graduating college seniors. If colleges and universities are mandated to carry out such assessments, they will likely turn to the departments within their colleges to provide them. Consequently, there will be a greater need for published literature on student learning in various academic disciplines that will provide the necessary means to be more proactive in meeting these legislative mandates (Charlevoix, 2008). In the face of the evidence of this important understanding, what is the true north of academia? What is the vision? Higher education may need to extend its reach and inspire to convey clear

intentions while at the same time transform internal rigid cultures, and engage and inspire faculty to accelerate innovation. Who will lead the charge?

References

- Albers, C. (2008). Improving pedagogy through action learning and scholarship of teaching and learning. *Teaching Sociology*, 36(1), 79-86.
- Andresen, L. W. (2000). A useable, trans-disciplinary conception of scholarship. *Higher Education Research & Development*, 19(2), 137-153.
- Angelo, T. A., & Cross, K. (1993). *Classroom assessment techniques: A handbook for college teachers* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Badley, G. (2003). Improving the scholarship of teaching and learning. *Innovations in Education and Teaching International*, 40, 303-309.
- Benander, R. (2009). Experiential learning in the scholarship of teaching and learning. *Journal of Scholarship of Teaching and Learning*, 9, 36-41.
- Bernstein, D. A., Burnett, N., Goodburn, A., & Savory, P. (2006). *Making teaching and learning visible: Course portfolios and the peer review of teaching*. Bolton, MA: Anker Publishing.
- Boshier, R. (2009). Why is the scholarship of teaching and learning such a hard sell? *Higher Education Research & Development*, 28(1), 1-15.
- Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. San Francisco, CA: Jossey-Bass.
- Cantor, J. A. (1997). *Experiential learning in higher education: Linking classroom and community*. Washington, D.C: The George Washington University Graduate School of Education and Human Development.
- Caffarella, R. S., & Barnett, B.G. (1994). Experiential learning: A new approach. In L. Jackson and R. S. Caffarella (Eds.), *Characteristics of adult learners and foundations of experiential learning* (pp. 29-42). San Francisco, CA: Jossey-Bass.
- Charlevoix, D. J. (2008). Improving teaching and learning through classroom research. *American Meteorological Society*, 89(11), 1659-1664.
- Cox, M. D. (2003). Proven faculty development tools that foster the scholarship of teaching in faculty learning communities. *To Improve the Academy*, 21, 109-142.
- Cox, M. D., Hunt, L., Bromage, A., & Tomkinson, B. (2006). Phases in the development of a change model. *The realities of change in higher education*, pp. 91-100. New York, NY: Routledge.
- Cunsolo, J., Elrick, M., Middleton, A., & Roy, D. (1996). The scholarship of teaching: A Canadian perspective with examples. *The Canadian Journal of Higher Education*, 26(1) 35-56.
- Diamond, R. M. (1993). Changing priorities and the faculty reward system. *New Directions for Higher Education*, 1993(81), 5-12. doi: 10.1002/he.36919938103
- Gallison, P. (1997). *Image and logic: A material culture of microphysics*. Chicago, IL: University of Chicago Press.
- Glassick C., Huber, M., & Maeroff, G. (1997). *Scholarship assessed: Evaluation of the professoriate*. San Francisco, CA: Jossey-Bass.

- Hutchings, P., Huber, M., & Ciccone, A. (2011). Getting there: An integrative vision of the scholarship of teaching and learning. *International Journal for the Scholarship of Teaching and Learning*, 5(1). Retrieved from <http://digitalcommons.georgiasouthern.edu/ij-sotl/vol5/iss1/31>
- Hutchings, P., Huber, M., & Ciccone, A. (2011). *Why the scholarship of teaching and learning matters today*. San Francisco, CA: Jossey-Bass.
- Hutchings, P. (2007). Theory: The elephant in the scholarship of teaching and learning room. *International Journal for the Scholarship of Teaching and Learning*, 1(1), 1–4.
- Jaafar, R., & Baishanski, Y. (2012). Developing cross-disciplinary competencies through college algebra. *Insight: A Journal of Scholarly Teaching*, 7, 17-30.
- Kreber, C. (2001). The Scholarship of Teaching and Its Implementation in Faculty Development and Graduate Education. *New Directions for Teaching and Learning*, 2001(86), 79–88. doi: 10.1002/tl.18
- Kreber, C., & Cranton, P. A. (2000). Exploring the scholarship of teaching source. *The Journal of Higher Education*, 71(4), 476-495.
- Kuh, G., & Ikenberry, S. (2009). *More than you think, less than we need: Learning outcomes assessment in American higher education*. National Institute for Learning Outcomes Assessment. Retrieved from <http://learningoutcomesassessment.org/NILOAsurveyresults09.htm>
- League, C. (2008). Something for everyone: AI lab assignments that span learning styles and aptitudes. *Journal of Computing Sciences in Colleges*, 23(5), 142-149.
- McKinney, K. (2006). Attitudinal and structural factors contributing to challenges in the work of the scholarship of teaching and learning. *New Directions for Institutional Research*, 129, 37-50.
- Nicholls, G. (2004). Scholarship in teaching as a core professional value: What does this mean to the academic? *Teaching in Higher Education*, 9(1), 29-42.
- O'Meara, K. A. (2005). Encouraging multiple forms of scholarship in faculty reward systems: Does it make a difference? *Research in Higher Education*, 46(5), 479-510.
- Richlin, L. (2001). Scholarly teaching and the scholarship of teaching. *New Directions in Teaching and Learning*, 86, 57-68.
- Schwab, J. (1964). Structure of the disciplines. In G. W. Ford & L. Pugno (Eds.), *The Structure of Knowledge and the Curriculum*. Chicago, IL: Rand McNally.
- Smith, R. (2001). Expertise and the scholarship of teaching. *New Directions for Teaching and Learning*, 86, 69-78.
- Spellings, M., (2006). *A Test of Leadership: Charting the Future of U.S. Higher Education*. Final report of the Secretary of Education's Commission on the Future of Higher Education. Retrieved from <https://www2.ed.gov/about/bdscomm/list/hiedfuture/reports/final-report.pdf/about/bdscomm/list/hiedfuture/reports/final-report.pdf>
- Tenenberg, J., & Wang, Q. (2005). Using course portfolios to create a disciplinary commons across institutions. *Journal of Computing Sciences in Colleges*. 21(1), 142-149.
- Theall, M. and Centra, J. A. (2001), Assessing the Scholarship of Teaching: Valid Decisions from Valid Evidence. *New Directions for Teaching and Learning*, 2001(86), 31–43. doi: 10.1002/tl.14

Trigwell, K., Martin, E., Benjamin, J., & Prosser, M. (2000). Scholarship of Teaching: A model. *Higher Education Research & Development*, 19(2), 155-168.

Waterman, M., Weber, J., Pracht, C., Conway, K., Kunz, D., & Evans, B. (2010). Preparing scholars of teaching and learning using a model of collaborative peer consulting and action research. *International Journal of Teaching and Learning in Higher Education*, 22(2), 140-151.

Weston, C. B., & McAlpine, L. (2001). Making explicit the development toward the scholarship of teaching. *New Directions for Teaching and Learning*, 86, 89-97. Wilner, A. (2009). *Engaging faculty in scholarship of teaching and learning: A view from BRIDGE*. Unpublished manuscript, Rider University, Lawrenceville, NJ.

Ziolkowski, E. J. (1996). Slouching toward scholardom: The endangered American college. *College English*, 58(5), 568-588.

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A Study of the Effectiveness of Blackboard Collaborate for Conducting Synchronous Courses at Multiple Locations

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This paper discusses the effectiveness of the videoconferencing software Blackboard Collaborate for carrying out instruction at college level to students attending classes synchronously at multiple locations. The paper describes the motivation for this study, a brief literature review on the subject, the methodology used, and the results obtained. The main conclusion of this study is the confirmation that synchronous instruction, in general, and Blackboard Collaborate, in particular, is an effective environment for tuition of students at a distance. Based on this study, several recommendations to be used in synchronous education are provided.

Motivation

This paper will analyze the experience the author had in teaching Discrete Mathematics using Blackboard Collaborate, videoconferencing software that allowed students at various locations in the United States to take part in live regular class sessions. The course was designed to test the feasibility of carrying out a course using only remote synchronous connections between instructor and students, and to gain firsthand experience in the process.

Park University, the author's institution, currently delivers asynchronous distance education to more than 20,000 students worldwide. The University currently uses eCollege and eCompanion as its main software platform for course delivery. Park University has also more than 40 campus centers at various locations in the United States where face-to-face instruction is offered in various disciplines. Blackboard Collaborate software was recently acquired to be used as an administrative tool. Given this context, the main motivations for the development of this course were:

- The desire to increase student enrollment by fighting fragmentation of student population. This condition appears when sections of the same course are cancelled due to low enrollment at various campus centers. Linking students from various campus centers in a synchronous course would avoid eliminating these sections and satisfy course loads.
- The desire to provide added sections of courses that may not be offered regularly at campus centers due to unavailability of credentialed faculty for the specific disciplines.
- The low appeal for online offerings amongst a significant number of campus center students.
- The desire to increase the quantity of course offerings at campus centers and limit the number of cancellations to improve customer service.

Literature Review

Scholarly articles and papers dealing with the use of synchronous technologies for teaching on the Internet have been produced since these tools have been made more widely available for the general public in the first decade of 21st century. Foreman and Jenkins (2005) described a set of desirable characteristics a Web Conferencing System (or "Webcon", as they call it) should have to enhance the synchronous learning experience. A survey of then-available tools for synchronous and asynchronous online learning was also presented the same year by Repman, Zinskie, and Carlson (2005), and an evaluation of a combined synchronous and

asynchronous experience by Teng and Taveras (2004), describes the initial challenges found in integrating synchronous technology in online education.

In the ensuing years, various papers compared the performance of synchronous education against other delivery modes. Moridani (2007) presents the results of a study that compares synchronous with asynchronous teaching. Similar comparisons are presented by Roblyer, Freeman, Donaldson, and Maddox (2007), Skylar (2009), and Al-Nuaim (2012), in different software environments and curricula. The conclusions of all these studies show that both delivery modes are comparable in their effectiveness to instruct. In particular, in Moridani (2007), students showed their preference for the greater interaction that synchronous education provides. This correlates well with the results of a later study on perceptions of students who take synchronous courses, presented by Karal, Cebi, and Ayca (October, 2011). In this study, even though students were initially dubious of the benefits of this modality of learning, once they were engaged in course activities, their attitude was far more favorable.

Synchronous online learning was also compared with face-to-face education by Koeber and Wright (2008), and while students preferred the greater personal contact with instructor and other students in the face-to-face environment, they recognized the potential of synchronous online learning in situations where the traditional class environment is not available. As a counterpoint, in her dissertation, Phillips (2010) reports that a similar comparative study between face-to-face, synchronous, and blended/hybrid environments gives higher marks to the synchronous modality in academic success, retention, grades, and overall. She attributes these results to pedagogical and media attributes of the synchronous environment.

The literature on the subject also includes reports on the use of diverse technology in the synchronous realm. Gibbs and Larson (2007) relate an experience using MediaSiteLive, a videoconferencing system for lectures. In similar fashion, Cunningham, Fagersten, and Holmsten (2010) present the results of using Marratech and AdobeConnect, while Stewart, Harlow, and DeBacco (2011) report their experiences with Google Video chat. In turn, Wang and Chen (2012) used a "Synchronous Learning Management System" (SLMS) called 3C. This present paper is also following this thematic line by reporting on the use of Blackboard Collaborate for synchronous education.

Finally, two papers also describe the use of synchronous technology to support various educational efforts. Burke, Chaney, and Kirsten (2010) used videoconference technology for multicultural studies in health education, while Karal, Cebi, and Ayca (April, 2011) reported on the use of synchronous technology to support education with handicapped people from the student perspective.

Methodology

The course that was selected for synchronous delivery was Discrete Mathematics. The main reason for choosing this course was the scarcity of face-to-face offerings of this course among campus centers due to low enrollment or lack of qualified instructors. Because of this situation, students regularly elect to take the course online; however, many of them find it extremely difficult to learn the course material without attending face-to-face class sessions. A synchronous offering of this course could provide the more personal attention typical of face-to-face classes, along with the convenience of online courses' ubiquity.

The author directed class sessions from his office at the Park University Campus Center in Austin, Texas, while students attended these sessions from various locations in Austin, Texas; Minot, North Dakota; and Charleston, South Carolina. Every participant had full duplex audio and video communications. The course was offered in an 8-week term between October and December 2012. There were two class sessions per week, each lasting 2 ½ hours.

In an effort to promote and effectively prepare for this course, six informative pre-sessions were offered to students interested in learning about the

synchronous course. During the sessions, prospective students tested their individual connections, learned the basis of being participants of a Blackboard Collaborate session, and viewed a limited sample of the course contents. Some campus center administrators who also attended these sessions got acquainted with the mechanics of the course and the requirements it would set for their campus centers and their students. Students who wanted to register for this class were required to attend one of these pre-sessions. A total of nine students registered by the end of add/drop period.

Students were polled at various stages of the presentation to gauge the level of understanding and engagement with the class.

Besides Blackboard Collaborate used in class sessions, the course made use of eCompanion as a repository of course documentation, delivery of assignments, administration of quizzes, and gradebook keeping.

All class sessions were recorded by the Blackboard Collaborate system, and all students had access to them immediately after the class ended. This way, students who missed a class, or those who attended but desired to review some topics, could have access to the class sessions again. Course material was explicitly prepared for this form of delivery based on enhanced PowerPoint presentations. This material was made available to students at various stages of the course.

Final exams were proctored on-site by the respective campus center administrations. An anonymous survey was presented to students at the end of the course. The analysis of their responses is included in this paper.

The Software Platform

Blackboard Collaborate facilitated most of the activities associated with traditional instruction:

- A **presentation window** allowed delivery of content. This window was accessible to all course participants and was used extensively on discussions over course material. Premade PowerPoint presentations were incorporated in this window, and participants could make annotations to their live display, facilitating the communication.
- Students could also interact with the instructor and each other on presentations using their voice and also a **chat system**. The chat system was used by students to exchange messages among themselves without disturbing the class in progress and to answer instructor's questions during class.
- Students were polled at various stages of the presentation to gauge the level of understanding and engagement with the class. The software platform facilitated this activity by having an **automated polling mechanism** that allowed the instructor to present objective questions to students and gather the answers. Polling questions included "Is this concept understood?" and "Should we continue to another topic?", but there were also more sophisticated ones, such as presenting multiple choice questions based on the topic under study and allowing students to answer with the choices provided by the system.
- Blackboard Collaborate allowed for the **recording** of its sessions. All sessions were recorded and made available to all students after the end of each class and throughout the length of the course. This feature was used by students who missed classes and the ones who wanted refreshers on the topics covered.
- The software platform also allowed for group work, which involved separating students into teams through the use of the **breakout room** feature. Students used this feature to work in teams on additional exercises, designed to reinforce concepts explained in that class session. Break-out rooms were created randomly, so students could interact with different individuals every class meeting. Students usually interacted with members of their groups using their voice and another presentation window specific to that group. The

instructor rotated amongst the various breakout rooms, verifying progress and giving advice when necessary.

- Syllabus, assignments, and other course material were delivered synchronously to students during class sessions, but copies of these documents were also stored in **eCompanion** for students' reference.
- Office hours were carried out using the same software platform two hours before the beginning of the class and also after class when students requested them.

All these activities were performed seamlessly, and instructor and students became more adept at using all these platform features rather rapidly in the course.

Analysis

Software Platform Issues

The only specific problem with the software platform was in the writing of mathematical equations. Blackboard Collaborate offered various alternatives to address this issue; however, none of them were completely satisfactory. Initially, the instructor provided special libraries of symbols to be used when discussing mathematical expressions, but these symbols were difficult to manipulate when arranged in groups to form more complex expressions. For example, the following expression was difficult to write during a live session:

$$\sum_{i=1}^{n+1} i = \frac{(n+1) \cdot ((n+1) + 1)}{2}$$

An alternative to using these symbols was to use text boxes, available in the presentation window. Unfortunately, they organize the content in paragraphs, without support for equations, and they had a single baseline for text, making it impossible to have text above or below symbols as shown above.

A more effective solution was to use the drawing capabilities of the presentation window to draw rather than type mathematical expressions. This worked better to organize the elements of the expressions in the right position, but given that each expression is made up of many symbols, it was difficult to manipulate them as a group. It was time-consuming and took more steps than was practical. The process was improved by the use of touch screens, but this facility was available only to the instructor. Students had to keep battling with the expressions on their own installations. Unfortunately, touch screens were not as sensitive as mouse devices, because the mouse has more control of fine movements within a small area.

Synchronous teaching...deals with the same pedagogical issues present in other learning environments.

In the end, higher dexterity obtained by continuous practice, and a lot of patience from all class participants, made the use of the mouse to draw mathematical expressions the option to carry on with lessons. It also helped a lot that the later topics in the course did not rely on the manipulation of complicated formulas.

Pedagogical Issues

Synchronous teaching also deals with the same pedagogical issues present in other learning environments. The instructor employed various policies and strategies common to other teaching modalities:

- Attendance was required of students for all classes. It is well-known that regular student attendance increases course scores and overall learning. Even though students could review recordings of class sessions, attendance was still required. Most students attended regularly, others did not. As was expected, the most egregious absentees failed the course. There were no penalties directly associated with absences. However, Discrete Mathematics is difficult enough in any form of delivery, so that if a student does not participate actively, her or his grades are likely to be lowered. The fact that recordings of each class session were available to students did not replace the benefits of actual attendance. One reason is that the class required participation in hands-on and group activities, and the recordings could not reproduce these same experiences. Also, recordings were the same length time as the class meetings (2 ½ hours), and students who might have trouble securing time to attend class sessions may also have trouble finding enough time to view and understand the recordings.
- Regarding attendance, this teaching modality also achieved what might have been difficult to do in other modalities. During the first week of class, one student suffered serious medical problems that required hospitalization for several weeks. Even though he could not move from his hospital room, he managed to attend a good number of our class sessions. This kept him focused and up-to-date with the course material. Fortunately, his health improved, and he could attend the proctored exam, and passed the course. This was an important and unexpected benefit of this teaching modality, one that could be aptly employed for teaching mobility-challenged individuals such as handicapped persons and wounded veterans. This observation is consistent with the results of the study by Karal et al. (April, 2011).

The breakout rooms proved to be an invaluable technique for student understanding and assimilation of concepts.
- Previous papers in the literature report communication problems due to faulty connections as the main problem in the synchronous environment (Cunningham et al., 2010; Karal et al., October, 2011). To minimize these problems, at the beginning of the course all participants were requested to have headphones with incorporated speakers and microphone to minimize echo during class sessions. This worked relatively well, after an initial period of student adjustment. A web camera was also required of all participants to maintain visual contact. Even though this equipment was used during the first sessions, most students preferred not to activate them. At no point during the course were cameras turned on by all participants, and their use was negligible after the initial sessions. Given this fact, the instructor also stopped broadcasting from his web camera from midterm onwards. There are various possible reasons for the lack of web camera usage: difficult set-up, forgetfulness, self-consciousness on the part of participants, and irrelevance of the video stream, among others. However, the communication and instruction was not hampered in any way by the lack of video feed. In light of this fact, future offerings in this teaching modality may consider dispensing with the web camera requirement altogether. However, this may depend on subject material and the instructor's teaching technique. This observation contradicts the recommendation made by Karal et al. (October, 2011) that suggests the use of more cameras and angles to avoid student boredom. If the course participants can maintain verbal contact, their own video feeds may not be necessary, as long as students are engaged with the other interactive tools of the environment as described in the next paragraph.
- Students were also engaged by their interaction with the presentation window. At various times during presentations, students were queried about the topic at hand and requested to write in the presentation window solutions to problems. Often they also complemented these solutions with oral comments and chat

entries. These were very effective mechanisms to keep students engaged in the subject matter, regardless of the problems with the software platform that were previously described.

- The breakout rooms proved to be an invaluable technique for student understanding and assimilation of concepts. After the presentation of a main topic with exercises for the whole class, similar exercises were provided to teams in separate breakout rooms. Teams were composed of two to three students. Solving similar problems reinforced the concepts already discussed, and more advanced students could explain to the others in their team the same ideas but in their own words. The instructor moved from room to room, verifying progress and making suggestions when appropriate. This way he could oversee problems with understanding and solve them immediately.
- Like most courses these days, a PowerPoint presentation was prepared for every class. However, for Blackboard Collaborate, the PowerPoint presentations had to be converted to a compatible format for display. This format does not allow premade animations, but converts every PowerPoint slide into a single image. Instructors have to be aware of this fact and plan their presentations accordingly. Under these circumstances, a sequential chain of thoughts or ideas for a topic could be condensed into a single slide, or created sequentially through many slides. The instructor experimented with both of these styles in the class, and obtained better results with the second format. Ideas condensed into one slide left little room for annotations during class and became too “busy” for students to grasp at a glance. On the other hand, faster rates of understanding were experienced when students were presented with a step-by-step development of a topic in various slides that could be backtracked when necessary.
- Although these presentations were viewable on class recordings, students also wanted to have independent access to them after hours. The instructor experimented with providing access to the PowerPoint presentations before and after the class. Initially it was thought that giving students access to presentation material before class would spoil class attention and engagement, but it was a happy surprise to see that in fact, the opposite was true. When students had access to the presentation before class, they were already somewhat familiar with the material, but may have some doubts about the complete procedure. The class explanation helped to reinforce their understanding of concepts, rather than their discovery.
- Finally, assessment of the course was made through weekly homework and quizzes, the midterm and final exam. To practice for assessment, every week students were given additional exercises, similar to the ones explained in class. Homework and quizzes were based on previous week’s lectures to give students time for preparation, and once again included similar problems to the ones discussed in class. Midterm and final exam also included this kind of problems, emphasizing that the skills being shown in class were the ones being tested on, and the ones necessary for future courses.

Student Feedback

The course began with nine students. Of those nine, one withdrew in the third week of class. An anonymous student survey was carried out on the last week of the term. Responses from six students were obtained (75% of total possible). The survey was designed to gather student opinion on various aspects of the course that may have impact on future offerings. Survey questions were divided into three areas:

- **Enrollment and preparations.** The survey showed that the students preferred face-to-face classes above all, with synchronous courses being a close second, and online being disliked the most. This came from students with experience in all modalities. The course was required of all students, and they

chose this teaching modality because they did not have it offered face-to-face at their campus centers, did not want to take it online, and/or they thought that it would be an interesting alternative to try. All of them had experienced previous class cancellations while at Park University, and if this course would have been cancelled due to low enrollment, they would have waited for it to be offered face-to-face or until they could no longer wait and had to take it online. The characteristics described here fitted the expected profile for students who may take synchronous courses.

- **Blackboard Collaborate.** All respondents agreed that the pre-sessions were good enough to understand how Blackboard Collaborate works. They connected to sessions from home, work, and campus centers. There was also one student connecting from the hospital. Most of them had no major difficulties with the environment, but for those who did the problems were mainly due to poor audio reception. They also reported that these problems were solved when they reset their computers and/or software, followed the setup instructions, and/or changed browsers. There were reports of other problems which did not have to do with Blackboard Collaborate, but rather with eCompanion or the campus center. These later problems will be discussed in another section.
- Students were also asked questions regarding the distractions they had in class sessions, and they listed in equal parts either no distractions, echo in the lines, or their own personal distractions. They also were distracted by the annoyance of having to deal with the difficulty of writing formulas in the presentation window by themselves or with other session participants. This problem surely influenced the ranking of its interactive tools as of average use and somewhat above average effectiveness.
- All in all, students indicated that Blackboard Collaborate has very useful features that include its audio capabilities, recordings, polling, and breakout rooms as the most useful. These were also the features that were considered the most effective by students. Chatting and video capabilities were the least useful and effective features.
- **Course Features.** Respondents agreed completely with the following sentences:
 - "I like I can ask questions in class and receive immediate response, instead of using e-mail."
 - "I like the opportunity of interacting with other students during class to solve course problems."
 - "I like that I can review the class using the recordings."

With regards to the sentence "I like the ability to take classes from wherever I have an Internet connection", all but one student agreed completely. On the other hand, they all somewhat disagreed or disagreed completely with the following statement: "I think the technical difficulties are too big to take a course synchronously."

There was no consensus regarding the difficulty of the course. Four respondents out of the six disagreed with the sentence: "I think taking courses synchronously is more difficult than online or face-to-face." One of the other two students neither agreed nor disagreed with the sentence, while the last one somewhat agreed.

Students indicated that the following issues were done particularly well:

- "I believe this course was very successful. I have enjoyed it a lot. Particularly I liked having options of accessing the class from anywhere with a proper internet connection. At first teaching techniques utilized for this course needed some adjustment but instructor was able to adjust his teaching style which dramatically improved the course and its presentation."

- "The professor was very patient with the whiteboard (takes forever to write or draw) and with the people who had bad/slow connections. I think the break out rooms were very useful too."
- "The required material was covered in depth and normally done step by step by the instructor. This helped me learn what I thought was difficult material! I would definitely take another synchronous course"
- "Overall was great class and was able to learn material during the sessions and watching the recordings, PowerPoint slides availability was also helpful."
- "Power Point presentations for Graphs and Trees were very well done (or my comprehension of the content went well). The connectedness factor among instructor and students was excellent. Encouraging full class participation and instructor office hour availability-the whole interactive-ness thing totally worked."
- "I think the course presentations and the recordings were very professional."

The issue that most students indicated could be improved was the software capabilities with regard to the interaction with the presentation. One student also wanted recordings of the breakout rooms, because they are not part of normal recording. Another student also mentioned that the "flow" of the course could have been improved, but s/he mentioned that the flow was "wonderful" by the fifth week. These changes were predictable, given that this was a pilot course where various issues were tested.

Overall, students' comments in this course were in line with comments made by Discrete Mathematics' students from previous face-to-face classes. All respondents indicated they would recommend this course to other students and that they will also take other courses synchronously.

Given the success of this experience, a second delivery of this course was offered in a later 8-week term, between January and March 2013, using a sister software product called Class Live Pro. This product had features identical to Blackboard Collaborate with similar interface. Based on the student feedback on the first experience, some modifications were made to the course: Fewer preparation sessions were needed to introduce students to the classroom environment; some chatting features were disabled to improve some possible source of student distraction; the instructor implemented early use of a pen tablet to draw formulas; and video cameras were not required of students to connect to the sessions. Seven students were enrolled in the class. The delivery of this course went more smoothly and its outcomes closely agreed with the results obtained in the first experience in regards to platform, pedagogical, and student related issues. This fact emphasizes the repeatability of these results and reinforces the author's position that the use of synchronous technologies is an effective alternative for education at a distance.

Administrative Issues

Students for this course were recruited from various Park campus centers. The directors of those centers were given absolute autonomy in regards to how students were expected to attend class sessions. Students at one campus center were allowed to connect to class sessions from wherever they deemed it convenient with their own computers. Other campuses requested students to attend the campus center and use campus equipment, arguing better attendance control. Even though these students made the effort to comply with this request, they would have preferred not to. Some of them could get better connectivity and access to better equipment on their own. Given that attendance control was never an issue, because it was recorded by the instructor and not by the campus centers, it would be advisable to let all students decide which venue will be best for them to connect to class sessions. Proctoring of the final exam was carried out by campus centers.

Conclusions and Recommendations

1. Blackboard Collaborate provides a good alternative to traditional face-to-face and online offerings. It requires from students the same time commitment as face-to-face classes, but gives flexibility to remote students to connect from wherever they may be. This flexibility was demonstrated when a student had to be hospitalized in the first week of class. He followed most of class sessions from his patient bed in the hospital.
2. Blackboard Collaborate is a reasonable software platform to carry on synchronous sessions. The environment is stable, and can easily handle sessions of 3 hours or more. Students need to be trained in their use before the term begins to avoid delays in dealing with course material.
3. The main deficiency of the software platform was its clumsiness in manipulating mathematical equations. This was a major source of frustration for all participants. The most reasonable solution to this problem is to treat mathematical equations as drawings on a canvas. This solution may require a high level of dexterity with the mouse from participants. All in all, communication was possible, albeit slightly delayed by the technology. In courses where the use of mathematical equations is not as heavy as in a math course, this environment will accommodate the delivery of material seamlessly. If writing equations is essential for a course, the use of a point-and-draw device, like a pen tablet, will be advisable, at least on the instructor side.
4. It is advisable to provide off-line course material to students in advance of class sessions. This helps students to prepare before a class, and they can later refer to this material as part of their class notes. Besides this material, sessions should also be recorded. While missing students could readily benefit from these recordings, it was shown that in fact, students who attended the class also used the recordings to re-examine concepts that were not clear or to prepare for exams.
5. Even though students could see the recordings of a class afterwards, attendance was mandatory because every session required team participation to solve course problems. Breakout rooms are a very effective way to reinforce course material. After a new concept is presented and applied in class, students are broken up in teams of two to solve similar problems. They can interact with their team members, and the instructor can supervise development and give individual advice to students who are struggling or have questions on the topic. Student interaction also allows students to learn from each other by comparing their understanding and the way they would apply it to new situations. Students really help each other to learn the material. At the practical level, the process of breaking up students into teams and having them work on a task is much more efficient than in a traditional class or an asynchronous online class. The groups are easily created and managed with a few keystrokes, and students really participate in the task, because the environment and a watchful instructor keep them focused on the goal to be achieved.
6. At the end of the term, it was reassuring to see that student performance followed a typical bell-shaped curve, with few students at both ends of the spectrum and the bulk around the grade of "B". It was also interesting to observe that this teaching modality is not immune to challenges encountered in other forms of delivery: absences, tardiness, sickness, and student withdrawals. All these situations were a good test for this course and were as effectively dealt with as in face-to-face and online classes.

References

- Al-Nuaim, H. A. (2012). The use of virtual classrooms in E-Learning: A case study in King Abdulaziz University, Saudi Arabia. *E-Learning and Digital Media*, 9(2), 211-222.
- Burke, S. C., Chaney, B. H., & Kirsten, W. (2010). International videoconferencing for public health education: Linking the U.S. and Germany. *American Journal of Health Education*, 41(1), 53-59.

- Cunningham, U., Fagersten, K. B., & Holmsten, E. (2010). Can you hear me, Hanoi? Compensatory mechanisms employed in synchronous net-based English language learning. *International Review of Research in Open and Distance Learning*, 11(1), 161-177.
- Foreman, J., & Jenkins, R. (2005). Full-featured web conferencing systems. *Innovate: Journal of Online Education*, 1(4), n4.
- Gibbs, B., & Larson, E. (2007). Using video conferencing in lecture classes. *Innovate: Journal of Online Education*, 3(5), n5.
- Karal, H., Cebi, A., & Turgut, Y. E. (2011, April). Synchronic distance education from the perspective of a handicapped person. *Turkish Online Journal of Distance Education*, 12(2), 183-192.
- Karal, H., Cebi, A., & Turgut, Y. E. (2011, October). Perceptions of students who take synchronous courses through video conferencing about distance education. *Turkish Online Journal of Educational Technology - TOJET*, 10(4), 276-293.
- Koeber, C., & Wright, D. W. (2008). On the outside teaching in: Using Internet video-conferencing to instruct an introductory sociology course from a remote location. *Teaching Sociology*, 36(4), 331-343.
- Moridani, M. (2007). Asynchronous video streaming vs. synchronous videoconferencing for teaching a pharmacogenetic pharmacotherapy course. *American Journal of Pharmaceutical Education*, 71, 1-10.
- Phillips, S. K. (2010). *Providing access to developmental reading courses at the community college: An evaluation of three presentation modes* (Doctoral Dissertation). Available from ProQuest Dissertations and Thesis database. (UMI No. 3446502)
- Repman, J., Zinskie, C., & Carlson, R. D. (2005). Effective use of CMC tools in interactive online learning. *Computers in the Schools*, 22(1-2), 57-69.
- Roblyer, M. D., Freeman, J., Donaldson, M. B., & Maddox, M. (2007). A comparison of outcomes of virtual school courses offered in synchronous and asynchronous formats. *Internet and Higher Education*, 10(4), 261-268.
- Skylar, A. A. (2009). A comparison of asynchronous online text-based lectures and synchronous interactive web conferencing lectures. *Issues in Teacher Education*, 18(2), 69-84.
- Stewart, A. R., Harlow, D. B., & DeBacco, K. (2011). Students' experience of synchronous learning in distributed environments. *Distance Education*, 32(3), 357-381.
- Teng, T., & Taveras, M. (2004). Combining live video and audio broadcasting, synchronous chat, and asynchronous open forum discussions in distance education. *Journal of Educational Technology Systems*, 33(2), 121-129.
- Wang, Y., & Chen, N. (2012). The collaborative language learning attributes of cyber face-to-face interaction: The perspectives of the learner. *Interactive Learning Environments*, 20(4), 311-330.

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Tweeting To Learn: Understanding Twitter through the Lens of Connectivism

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Twitter, primarily a social media outlet, has recently started foraying and gaining a foothold in higher education. Written from a student perspective, this paper attempts to explain and critically discuss the usage and popularity of Twitter as a tool of active learning in higher education. The author writes about her student experience of using Twitter in her Public Relations Communications graduate class. The paper explores and scrutinizes the social media channel within the theoretical framework of connectivism.

Twitter appeared on the contemporary education scene in late October 2006. Originally developed as a social messaging microblogging tool, Twitter found its way into higher education institutions (Grosseck & Holotescu, 2008). At present, a growing number of higher educational institutions all over the world are teaching courses through this microblogging social media application. Twitter is a microblogging tool which allows users to send brief but informative messages to each other in fewer than 140 characters (Grosseck & Holotescu, 2008). The messages are called tweets, the people who tweet are called twitterers, and the people who read these tweets and respond to them are called users. It allows for real-time communication, diverse interaction, discussion with collaboration, and sharing of experiences and opinions (Skiba, 2008). Twitter has become a popular teaching tool that provides for active learning, learner attention, learner discovery, learner participation, and learner knowledge schema development.

Written from a graduate student's viewpoint, this paper examines and discusses the usage of the educational technological tool of Twitter in the classroom. The author writes in depth about her experience and observation of using Twitter in her graduate Public Relations class at an international university in south-east USA. She explains the role and usage of Twitter using the contemporary online learning theory of connectivism. The paper is divided into three sections. Section One provides a brief explanation of connectivism theory, followed by the author's story in Section Two. The third and final section of the paper embodies the discussion where the connectivism theory is revisited in greater depth. Through her paper, the author hopes to generate relevant and meaningful debate about using Twitter as a method of student engagement in graduate classrooms.

What is Connectivism?

Connectivism, the learning theory of the digital online age, focuses on and emphasizes 'social and experience learning' (Siemens, 2005). The gist of the theory states that people learn through connections of social and cultural interaction, and experience (Siemens, 2005). Each individual is a potential source of information and knowledge which has been developed through social observation and learning. This knowledge within the individual forms a mental framework, or schemata. Thus, a schemata or schema is a mental open framework of knowledge. Every single source of knowledge, in connectivist terms, is a 'node' that has already developed a schema. The node interacts with another node and then another to form a network. This network then becomes a channel of interaction wherein opinions, experiences, and factual information are shared. Hence, nodes develop a holistic schemata through these connections (Siemens, 2005). A network of connections becomes a method of knowledge-building. In the following section the author details her factual story of how Twitter was utilized in her graduate class.

My Story

"What are you doing?"

This used to be the constant query and response I had become used to in my Public Relations class CA 511 in Fall 2009. This was a graduate elective offered in the master's degree program of Communication. Besides me, there were nine other graduate students, all from the same program, but with different majors such as Broadcasting, Digital Media, Media Research Methods, Organizational Corporate Communication, and Advertising. I myself had the major of Organizational Corporate Communication. The Public Relations class was scheduled to run for 12 weeks, with weekly assignments on chapter topics, a midterm and final exam, and a small group presentation on a real-time public relations campaign. The class, being small with only ten students, had been divided into five groups with two students each. The class had two textbooks and many class readings to be given by the instructor in class.

The first sign that this class was not going to be the traditional classroom lecture one came with the announcement on the course website. The instructor announced that the entire course would be taught via Twitter. The class would meet every week on Thursday and discuss their tweets. Thus, every week, our twitter session was to revolve around a chapter and issues related to it. The instructor would post the first tweet, initiating and directing the class discussion. This first tweet was followed by responses throughout the week. The discussion would close on Thursday and a weekly assignment would be handed out to all the students. In total there were 14 topics and this meant 14 class discussions in a period of 12 weeks.

I had used Twitter earlier for social messaging but this was to be the first time I was going to use it for class. I was excited, and also nervous. There was no one to point the finger at and say, "The instructor failed to tell me." I could only point the finger at myself if I did not understand, and failed to clarify issues with my fellow classmates on Twitter. Each class member was given instructions during first day of class on opening twitter accounts and the discussion process. Twitter's avatar feature helped in viewing headshots of every class member's avatar. This helped in humanizing the twitter discussion system, making it personal and real-time. The instructor's tweet had a question, an opinion supported by relevant research facts. Tweets had to be concise and precise, as each tweet had a limited character count of 140. The followers, i.e., each student, had to answer the primary tweet with an answer and personal opinion, or observation. This tweet was answered by a fellow twitterer and so forth. The discussion ended on the Thursday with a summative tweet posted by the instructor before the face-to-face class. During the one-hour afternoon class, main points of the topic were discussed, followed usually by a quiz and a hand-out of the weekly assignment. The completed assignment was to be submitted during the next face-to-face class. Discussions, weekly assignments, and quizzes were to be part of the final grade.

In the beginning, specifically the first three weeks, none of us in the class could really learn anything on Twitter. During the first two weeks' discussions, most of my classmates tweeted "how does this work?"—"is this serious?" Each avatar would reply to primary tweet and that was the end of the class discussion. The system was used to chat about movies and fashion. Although the curriculum covered topics of definition, history, technology of public relations, discussions on twitter were frivolous. After three weeks of frivolous tweeting and silent discussions, I was sure the instructor would give up this idea of conducting class on Twitter.

But class demeanor underwent a change after the midterm. The entire class did badly, with everyone scoring an average C grade. I was sure that after this dismal performance, the instructor would cancel the class on Twitter. The instructor tweeted a few more instructions and warnings. I did not want a bad academic grade in my Public Relations class to negatively impact my GPA. I genuinely started making a positive effort in tweeting my opinions and questions. I

began tweeting seriously, and so did my classmates. Class discussions now became intense, challenging, and a place to test our knowledge and facts. Soon the class had formed a learning network, where each one of us was tweeting a chunk of information. This enabled the class to form their own mental schema through active assimilation and accommodation. The instructor had

Class discussions now became intense, challenging, and a place to test our knowledge and facts. Soon the class had formed a learning network, where each one of us was tweeting a chunk of information.

created a real-time class chatter session and space which provided the class with the opportunity to relate real-life public relations issues with chapter topics. The instructor was part of this chatter, allowing him to maintain control over what was happening. For instance, in week eight the class studied the topic of corporate social responsibility. After going through the text and the book questions, I had formed my own opinion about corporate social responsibility. I immediately tweeted the factual information with my own opinion to fellow-followers. My tweet got many responses, which made me research more into the topic. A tweet about the Enron scandal made me search articles and read about it. The class discussion became exciting and informative. I soon discovered that each one of us was more just a 'twitterer' or 'follower'. Every one of my classmates, including myself and the instructor, was a source of knowledge and information. We were learning from each other's observations, opinions, experiences, and observations. My instructor tweeted about the Bhopal Gas tragedy, and the next day my classmates and I were tweeting about it. At the end of the week, the discussion had become argumentative and combative. The final tweet by the instructor summarized the entire class discussion, congratulating each twitterer on their active participation.

My original schemas on various topics formed from textbook knowledge now accommodated knowledge gathered from my network of twitterers. This helped me to develop a holistic schema on each topic, and ultimately perform well in my quizzes and weekly assignments. The last topic covered in the course, just before the final, became a fun activity due to Twitter. This was on contemporary issues of Public Relations. Discussing this on Twitter was interesting, as every one of us had a different opinion and was constantly challenging every tweet. The class network explored, critically reflected on and scrutinized issues faced by public relations practitioners, and the future of public relations. Some tweets linked current challenges with past issues, and other academic disciplines. Twitter 'connected' us and formed a close-knit network of learners. Finals came and the class scored an average of B grade.

The social media of Twitter is based on the theory of connectivism, which holds that every learner is a contributor to the learning process.

Discussion

Why did Twitter work? Twitter is effective in contemporary education, as it follows the principle that learning and knowledge are not static artifacts but processes whereby learners can develop their own mental construction of the truth, or knowledge (Jarcho, 2011). Usually, what happens in the traditional classroom is that learners echo and assimilate the opinion and attitude of the expert, i.e., the instructor. There is no room for critical self-thinking and development of individual schema (Seimens, Cormier, & Downes, 2011). The social media of Twitter is based on the theory of connectivism, which holds that every learner is a contributor to the learning process. Connectivism advocates that every learner is a node of minute knowledge. These nodes form powerful networks of learning when the nodes connect and share information with each other (Seimens et al., 2011). Twitter functions on the primary principles of connectivism that knowledge is a dynamic process of growth, which seems to abound when people (nodes) connect and create

a network. Thus, connectivism resembles the theory of social constructivism (Kop, 2011). Social constructivism argues that learning and knowledge are steeped in communication, sharing, and dialogue. Seimens believes that this is a cardinal feature of connectivism (Seimens, 2005). Learning and knowledge grow and deepen through a diversity of opinions and beliefs. It is paramount to connect and share information and truth, as capacity to know and understand what is happening in the real world is more critical than what is known through books (Seimens, 2005).

This is what happened in my public relations class. The instructor forced each one of us to connect and share our opinions and current information. The traditional classroom now had become an online learning community. And the main node of this community, or in connectivist terms, this network was the instructor. Every week, the instructor would post a tweet capturing the main ideas of the chapter to be covered in the class that week. This tweet was a guide post, shaping the rest of our chatter. In other words, it was the responsibility of the instructor to post a “nugget of knowledge” every week and ensure communication, collaboration, and dialogue (Skiba, 2008). This sort of sharing and communicating with each other informally without formal class pressures, I think, helped us to overcome fear of speaking up in class in front of everyone. Each one of us was just tweeting and chatting about that particular topic—what we thought, current examples, and controversies. It enabled us to form our own mental constructions of that topic and critically reflect about it. For instance the corporate social responsibility of organizations and the role of public relations was a huge topic in the course, and the instructor devoted two weeks to it. He followed a similar pattern, posting the main idea and encouraging the class to discuss about it. I read the chapter, made notes and started tweeting in the class chatter space. After the first 25 tweets on textual facts and figures, the conversation moved on to examples. Twitterers discussed, argued, and debated about role of public relations during the Bhopal Gas Tragedy in the 1980s; during the Enron scandal in the 1990s, and the political role of public relations. All these discussions enabled me to broaden and deepen my narrow and limited schema at a more holistic level. It helped me to engage in deeper learning, where I was able to identify the common points and main similarities of diverse events and make connections to form a holistic open schema. This falls in line with what Garrison and colleagues state, that Twitter helps in deep learning (Garrison, Andersen, & Archer, 2000).

Twitter successfully allows for assimilation and accommodation of knowledge, and also metacognition. It enables learners to reflect on their thoughts and thinking process to concisely formulate tweets (Educause, 2007). Tweeting enables learner to critically reflect on what they are thinking-- it encourages them to discuss their opinions and thoughts without hesitancy, and make suitable modifications to their thoughts (Carnevale, 2006). Hence, the learner learns through processes of assimilation, accommodation, metacognition, collaboration, and active learning. Twitter makes the entire cycle of learning student or learner-centric, where the learner is in charge. Another facet of Twitter is its ability to help the learner see and understand the bigger picture, i.e., how facts and issues do not exist in isolation but belong to a larger scheme of issues. For instance, corporate social responsibility is an integral part of public relations which ties into advertising, organizational behavior, human resources development and management, industrial relations, and ethics.

But the success of twitter is largely dependent on the role and motivation of the learner (Kop, 2011). In the public relations class, Twitter failed to make headway during the first few weeks of class. Why? None of the students were motivated to use the Twitter as a tool for learning. I had always viewed the Twitter as a social media tool, fit only for social communication. Using it for learning purposes was new and not serious. I was sure my instructor would soon realize his folly and disband use of Twitter as the medium of learning by switching back to the traditional classroom lecture method of education. This method was safe and did not actually require me to think and be on my mental feet all the time. In other

words, it did not require active learning at all. But the results of the midterm changed the entire attitude of my classmates, including myself, in a big, visible way.

I started tweeting seriously—discussing facts, topics, and issues. Twitter enabled me to answer all my essay questions in the final and score an A grade. This happened, as Kop explains, because each one of us changed our attitudes and motivations. Take me, for instance—earlier, I never did take Twitter seriously, never made the effort as my motivation level was low. I was waiting for the instructor to revert back to the lecture mode of teaching. But the midterm results gave the boost to my motivation. I realized that I had to change my attitude. Twitter was going to remain and was not going away. So I had to change my mindset and my motivation. Thus, I started learning when I changed my attitude and my motivation level went up.

Kop argues that each learner has to don the mantle of individual learning and schema development. The instructor is no longer the know-it-all model of knowledge, and is not responsible for the learner's level and amount of learning (Kop, 2011). Learning is now resident in the connections individual learners establish and nurture (Seimens, 2005). This means that every individual learner has to be a fully committed and responsible adult learner. Again, going back to my example, Twitter became a useful and successful medium of learning when each one of us became a responsible adult learner. When this happens, Twitter engages the entire community with the three facets of learning, i.e., cognitive, social, and teaching presence. Twitter helps the learner to think on his and her own, enables learners to interact in an informal learning community, and the teacher's presence is existent, as even the instructor is another node of information in the community (Garrison et al., 2000).

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Twitter helped me, as a student, to develop a critical mode of thought and holistic perspective. I no longer saw the instructor as the ultimate source of knowledge. Rather, my classmates, the instructor, and I had minute bits of knowledge. These tiny chunks were shared by all of us (nodes) to form a learning network which developed a holistic mental representation of the 'truth.' This truth was subjective and had individual ownership. Each one of us individual nodes owned this schema and felt responsible for it.

Conclusion

In contemporary higher education, learning is viewed as a process that is constantly growing and developing. The use of Twitter to benefit from this perspective has changed the manner in which curricula, instruction, and instructors are viewed. Instructors have to embrace the role of mentor, guide, and coach, who have to guide the learning process. Twitter has increased the role and importance of instructional design as a professional specialized field. Instruction and curriculum have to be designed to prompt and encourage active critical reflection, community-building, collaboration, and formal as well as informal interactions.

This paper provides only a small insight into the world of Twitter in higher education. Specifically, it details a student's experience of using Twitter in a graduate humanities class. Research has to be conducted which shows the teacher's perspective and argument. What do instructors believe and feel? How do they view Twitter within the theoretical framework of connectivism as a viable tool of education? Can Twitter be viewed as a viable method of student engagement in quantitative courses of math and science? These are pertinent research questions which can develop into interesting research areas.

References

- Carnevale, D. (2006). E-mail is for old people. *Chronicle of Higher Education*, 53(7), A27-A29.
- Educause Learning Initiative. (2007). 7 things you should know about Twitter. Retrieved from www.educause.edu/ir/library/pdf/ELI7027.pdf
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher Education*, 2(2-3), 87-105.
- Grosseck, G., & Holotescu, C. (2008). Can we use Twitter for Educational Activities? In *4th international scientific conference, eLearning and software for education, Bucharest, Romania*.
- Jarche, H. (2011). Personal knowledge management. *Information Outlook*, 14(6), 13-15.
- Kop, R. (2011). The challenges to connectivist learning on open online networks: Learning experiences during a massive open online course. *The International Review of Research in Open and Distance Learning*, 12(3), 19-38.
- Seimens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1). Retrieved from: http://www.itdl.org/Journal/Jan_05/article01.htm
- Seimens, G., Cormier, D., & Downes, S. (2011). Change MOOC. Retrieved from: <http://change.mooc.ca/about.htm>
- Skiba, D. J. (2008). Nursing Education 2.0: Twitter & Tweets- Can you post a nugget of knowledge in 140 Characters or less? *Emerging Technologies*, 29(2), 110-113.

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A Multimodal Assignment That Enriches Literacy Learning

The Problem

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In education the linguistic is the mode most commonly assessed because it is important for students to write clear, complex pieces to show their understanding of content. However, in worlds outside of classrooms additional modes, such as visual, aural, and digital are often used to convey messages. This article demonstrates the value of multimodal learning (the use of more than one mode) as a means for student expression, specifically in responding to young adult literature. Here, I share how students had rich interpretations of a text through the use multiple modes.

In the spring of 2013 I was preparing to teach two sections of ENGL 210: Interpreting Literature, a course required by all students at the university where I teach. It was my second year teaching at the university. In my first year, I realized that not all students in the course have an affinity for reading, interpreting, analyzing, and writing about literature.

Many of my students were apprehensive about taking a required literature course and weren't hesitant to say so in a diagnostic essay. Many of my students that first year admitted that they didn't like to read, period. However, I noticed the literacy practices of students before, after, and in-between classes. They were texting. They were on their phones looking up information. They were talking about Facebook. They told me how they Googled everything that interested them. They frequently went to websites like YouTube and Funnyordie which revolve around short, created and re-mixed videos. They talked about Twitter. It was then that I realized that students didn't dislike reading, rather that they were experiencing reading in multimodal ways, completely different from the approach educators commonly take in the classroom.

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Because I have always been fascinated with assessments that are outside the box, I decided that this was my opportunity to teach these 70 students how to interpret, analyze, and think about literature in a new and innovative way, and that they just might have some fun along the way, too. Thus I introduced the assignment called The Multimodal Analysis of Literary Elements in 'Feed'.

Multimodal Assessment

Ever since I was a child, I was fascinated when I could respond to an academic task via a creative assignment. I took the opportunity to build a volcano instead of writing about one. My friend and I dressed up like Greek gods and goddesses and took photographs instead of taking a quiz. Even my junior research paper, on the teen films of the 1980's, featured photographs of members of the infamous Brat Pack. What I didn't know some 27 years ago was that I was a multimodal thinker.

Multimodality—meaning that is made through multiple representations and communication systems (Kress & Van Leeuwen, 2001)—allows individuals to use more than one mode to express understanding. Traditionally, schools focus on one mode—the linguistic. In school, there are verbal lectures, written papers, a myriad of tests and quizzes that ask students to answer questions, and oral presentations where students read from a Power Point. This tradition is typically upheld in the college setting. Not that these types of assessment aren't important, as they are.

But what happens when students are able to express themselves through more than one mode? What happens when students can respond with modes that extend beyond the linguistic?

It was Pierce (1934) who first explored the world of semiotics, or sign systems as a means of expression or communication. Since then, there have been multiple modes from which one can communicate. Be it oral, gestural, visual, spatial, or digital, there are multiple ways to send messages in this day and age, especially in a world where technology is a primary means for communication. If literacy is being redefined to include ways of knowing that extend beyond print (Dalton & Proctor, 2008; Leu & Kinzer, 2000), then it is evident that this new definition of literacy should be integral to teaching. While it's important to value language and for students to read and write, it is also urgent that we provide our students with means of communication that represent real-world ways of thinking, or what Brian Street (1984) calls "New Literacy Studies." The use of multiple modes in learning doesn't replace reading and writing; it enhances these skills through a combination of approaches.

Multimodality relies on transmediation, where individuals transfer "information from one sign system to another" (Suhor, 1984, p. 250). When they do this, the individual has more means, or modes, from which to communicate the message. Because my past students struggled with sharing their interpretations of a text in a traditional paper, I thought I would first use the opportunity to allow them to express their thinking multimodally, as this supports Vygotsky's notion of the Zone of Proximal Development (1986) where students increase their ability to perform difficult tasks through scaffolding led by the instructor. I predicted that by first responding to individually chosen literary elements of the text in a multimodal manner, students would become more articulate and provide deeper analysis of literary elements in subsequent papers. This was the case as I saw the class' median grade on the next two written analyses improve. This assignment suggested that students first mastered the skill of interpretation by choosing literary elements of their choice, and by presenting them multimodally, in a way that they could relate to the text.

A large misconception, however, in multimodal assessment is that the work requires the use of digital tools or technology. While many multimodal artifacts are created via digital tools, such as YouTube, Twitter, Vine, and Instagram, and although many artifacts make use of music, images, or hypertext, the notion of using more modes can include means that do not require technology. A collage made up of pictures cut out of magazines, for instance, constitutes the visual mode without the use of technology or digital tools. This was expressed to my students as they began work on their projects. While I invited them to use technology in their development of interpretations, I stressed that they had to use more than one mode, be it digital or other.

The Project: Analysis of Literary Elements in *Feed*

Students began reading M.T. Anderson's *Feed*, a popular young adult novel that takes place in the distant future. This dystopian setting revolves around the protagonist Titus and his friends, all of whom have feeds implanted in their brains that allow them to passively receive information, primarily from corporations. On a trip to the moon, Titus meets and develops a liking for Violet, another teenager. As the story develops, problematic circumstances arise for Violet as she tries to teach Titus and the other teens to resist the feed.

In each class period, the required section of the text was read and we engaged daily in discussion by responding to interpretive questions that students developed both in small groups and as a whole class. In addition to the questions, I asked students to consider the literary elements that stood out to them in each section. I reviewed the major literary elements, such as theme, symbol, conflict, character, setting, motif, as well as an array of others as we read the text. I didn't want to simply list and define these, as I wanted the students to understand

elements of literature in context. The Multimodal Analysis of Literary Elements in 'Feed' served as the final assignment after six class discussions on the text.

Before I presented my students with their project, I shared with them the definition of multimodality as well as told them about the value of this type of assessment. For example, I shared with them the work of Bailey (2009), who found that her students increased their knowledge of literary components through song analysis, and that Rozema's (2007) students scripted and planned more analytical analyses of texts as they created podcasts in which they analyzed the book *Feed* (Anderson, 2002), which we were reading that semester. I then provided students with the instructions for "The Multimodal Analysis of Literary Elements in *Feed*."

The results of students' work was impressive and ranged from projects that were created with little or no technology to projects that took full advantage of technological affordances.

I asked the students to choose any six literary elements that stood out to them (such as character, theme, symbol, conflict, motif, plot, etc.) and for each to "describe how the element is portrayed in the text followed by an analysis of that element." Each description and analysis was required to be about a substantial paragraph of about 150 words. The students could not simply write these though, as they were asked to present them in a "multimodal format." I gave students examples of multimodal formats ranging from creating soundtracks to emphasize key plot points, to making scrapbooks for major or minor characters, to making a Twitter account for a character. The students eagerly began to think about creative and multimodal ways they could build their projects. Lastly, I asked students to type a one to two page rationale when they completed the project, in which they justified their choices of elements as well as answered the following question: "How did thinking multimodally help shape your thinking about this project?" The results of students' work was impressive and ranged from projects that were created with little or no technology to projects that took full advantage of technological affordances.

Multimodal Projects That Used No Technology

It was evident that students understood that multimodal projects required more than one mode, but that they didn't necessarily have to have a technological mindset. Drew's project (all names are pseudonyms), for example, was simply a series of drawings of main characters and themes in the text. These vibrant and colorful projects were drawn on cardstock, with the description and analysis on the back of the card. One of the most impressive of these was a drawing of a young woman, with what looked like cuts all over her face (see Figure 1).

Figure 1

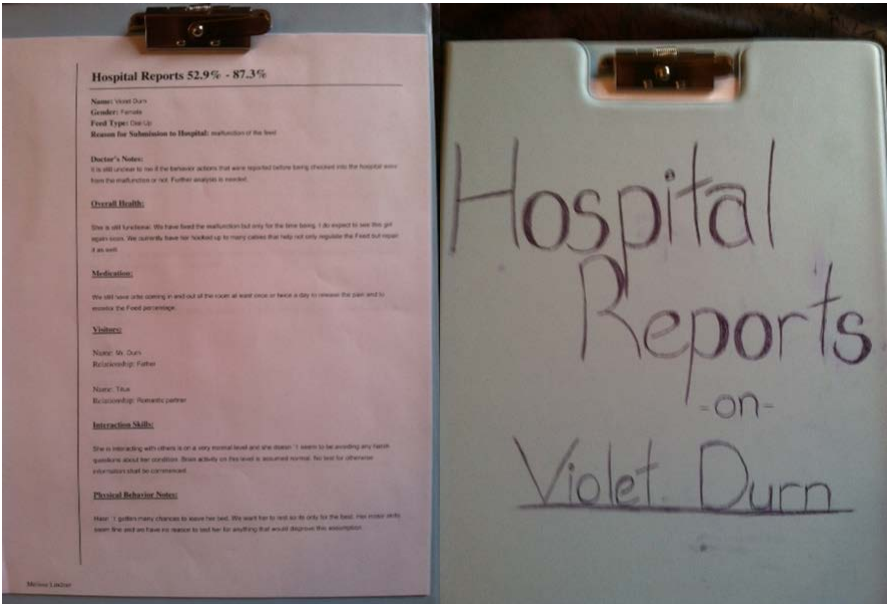


This was done to represent the lesions, hideous scars, which were a major fad acquired by the characters in the text that made these characters seem hip or cool. Drew felt that this was one of the most important elements in the text and wrote that these lesions "represented passivity in the story." She continued to describe the lesions as "wounds" that none of the characters questioned, but rather sought out. She then compared this passivity of acquiring the wounds with the passivity that the main characters developed towards the corporations in the novel.

Another creative multimodal project that required no technology was Frankie's clipboard (see Figure 2), which contained hospital reports on the character of Violet, who became physically ill throughout the book

because she resisted the feed. Because there were six instances in which the level of Violet's feed was reported, Frankie made a realistic hospital report in which she provided a rich character analysis that not only summarized what had happened to the character, but provided information that relied on her inferences about the character as well.

Figure 2



One of the most inventive multimodal projects was created by Dallas. His “Feed-wich” (see Figure 3) was a sandwich made out of construction paper, with each ingredient serving as a metaphor for an element of the text.

Figure 3

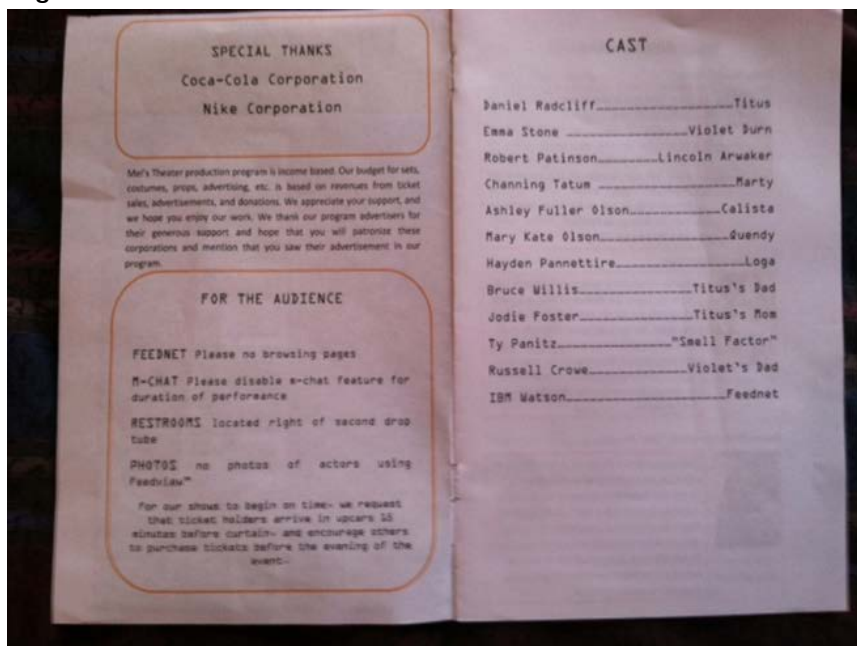


Austin recalled the fable from childhood that the moon was made out of cheese, so he associated the cheese on the “feed-wich” with the moon. The moon was the setting when the story began, and it is also where Dallas explained that the main characters learned how “humans have trashed Earth’s natural satellite and turned it into a center of consumerism.” This metaphor allowed Dallas to explain that the setting of the moon was important, because it “shows that the domination of advertising exceeds earth’s atmosphere.” Rather than stating that the moon was the setting, Dallas went into deeper analysis of the setting.

Multimodal Projects That Minimally Used Technology

The next level of multimodal projects required technology, but only in their creation, not in their presentation. A fine example of this was Mia's Playbill for the "play" Feed, based on the novel. Mia created a replication of a Broadway Playbill that one might receive when they see a staged performance. For her six elements, Mia wrote about the characters and chose actors that she felt represented those characters as she visualized them in the book. However, Mia went a step beyond when she created the first page of her playbill (see Figure 4).

Figure 4



First, Mia gives special thanks to "Coca-Cola Corporation" and "Nike Corporation" because they are large corporations that we see advertised on a daily basis. This mirrors the theme of consumerism in the text. More importantly, Mia provides some instructions "for the audience" on that first page that also mirror what occurs in the text. She first writes "Feednet" and next to this states "Please no browsing pages." In the text, the feednet constantly provides individuals with pages and pages of information based on what they are doing or seeing. Mia clearly understands this concept, and hopes that the individuals at her play can basically turn off their feeds so that they don't receive information throughout the play.

Mia also asks that the audience members "please disable m-chat feature for duration of performance." In Feed, the m-chat represents the ability to communicate with other members through the feed, which Mia does not want to occur during the show. This constantly occurs in the novel, and the fact that Mia wants the audience to disable the chat feature suggests that she understands this is a function that is always on, and that it's an important form of communication, but one not acceptable during a performance. Mia's directives are a strong connection between the behaviors one would want in a theater, and tie in with the text.

Multimodal Projects That Greatly Used Technology

When I announced the project to the students, many thought that the multimodal project required the use of technology. While it was not necessary to use technology, one student, Liz, took full advantage of digital tools and created a YouTube video that summarized and analyzed the text. The untitled video opened with the cover of the text followed by the statement, "The beginning of a new love for Violet and Titus." The subsequent image was of a young man and woman lovingly reclining on a hammock. The next title, however, continued with the statement "...didn't last as long as Violet had hoped. She was heartbroken." The video then shared statements and images that share how corporations are ruining the world. All of this occurs while the Brad Paisley song, "Welcome to the Future," played. It is very interesting that Liz chose to focus on the love story aspect of the text, as many of her classmates argued that this was not a love story, but a story of a brave young woman who fights consumerism.

"It Truly Generated Much Different Thinking"

On the due date, I had students set up their projects around the classroom so that they could take a gallery walk and look at what the others had created. I asked them to take note of at least three of the projects that they felt interpreted the literary elements clearly. I also asked them if they noticed any unique elements that were interpreted that they may not have considered and to consider the different ways some of the repeated elements were interpreted. This led to a final class discussion about the text. I then had students share some of their thoughts from their rationales, specifically how thinking multimodally shaped their thinking about the text. Below are some of the student responses:

- "...it proved to be an interesting way to look at the events of the book..."
- "Multimodal format is a way to express your thoughts through something other than a paper, something more exciting."
- "I am not worried about what others are doing because I know that the way I picture or express my thoughts is completely different than how someone else may picture or express their thoughts."
- "...it made you look deeper into the characters and the plot. It made me realize that you don't have to like the story to understand it."
- "I psyched myself out just because I had such a creative plan and I did not think it was going to work. Once I started working on the project I really got the hang of it and got the ball rolling on how this project was going to turn out."
- "I chose to show my elements through caricatures because they allow you to express emotion through a meaningful, light-hearted drawing."
- "I chose to use pictures because I am a visual learner and a lot of people can relate to this."
- "Thinking in a new way like this...it truly generated much deeper thinking and made me reflect a lot more on the reading and task at hand."

The trends in the student responses suggest that the project was engaging, which is something that benefits the student because she or he will be more focused on the work. I was also pleased to learn that several students thought creatively, thought more deeply about the text, and even enjoyed the assignment. Students were proud to show off their work in the gallery walk and many talked about how much time they invested in the project. The students also contributed greatly in the class discussion, comparing and contrasting some of the literary elements that they and their classmates described and analyzed. They went beyond discussing plot, setting, and character and talked in detail about the multiple themes, symbols, and motifs and other literary elements in the text and engaged in a dynamic whole class discussion that looked at the complexity of the text rather than having a surface-

based response to the text. In essence, the students discussed elements quite deeply as they talked about character motivation, made inferences, related to the text, and discussed elements more thoroughly than they might have if they had written a paper. Because each student analyzed six elements, the gallery walk and discussion covered a wide variety of elements. Students were now comfortable with analyzing an element of the text, which would enable them to focus more deeply on a singular element in the future. They thought critically about multiple elements and their purpose in the text.

Multimodality in Other Disciplines

I chose to do a multimodal project in the literature class because I feel that this is a class that focuses so much on the linguistic mode, while other subject areas tend to automatically incorporate other modes. For instance, in science courses, students sometimes conduct experiments or look at images and graphs. In History courses, students view maps, photos and documents. This doesn't mean that other disciplines can't benefit from multimodal assignments, though.

Instructors in other courses can always invite students to create multimodal artifacts such as maps or images to understand a concept in science, Facebook profiles of historical figures and their relationships to others to further explore history, or mini-documentaries of mathematicians. In fact, it's common in elementary and even middle school to create projects that use multiple modes, but it's interesting that this doesn't occur as often in secondary schooling or higher education. When the students are creating the multimodal artifacts, not only are they engaged, but they are given a sense of agency because they are choosing how to represent the information that they are learning. There is also a lot of cognition as they build their artifacts. They are constantly thinking about the content.

When the students are creating the multimodal artifacts, not only are they engaged, but they are given a sense of agency because they are choosing how to represent the information that they are learning.

I strongly suggest that instructors who incorporate multimodal assignments require that students write a rationale justifying their choices of modes and representation. This not only provides evidence of their thinking, but it holds students accountable for their choices, their thinking, and their understanding of the content. I also suggest that multimodal projects are shared with the whole class, so that students can gain an understanding of the content from a classmate's perspective.

Conclusion

I've always been a fan of multimodal expression because when the sender of the message has more modes to use, she or he has more ways to communicate. I jokingly give the example in class that I gesture a lot when I try to convince my students of something, and that this is a clear example of how using a mode beyond language aids me in explicitly making a point. The students were quite invested in the project, and rather than focusing on just one literary element, they were forced to re-read and review the text in order to analyze multiple literary elements. This is great scaffolding, because future assignments require them to write more deeply about singular elements. The Multimodal Analysis of Literary Elements in 'Feed' in a sense is practice for looking at multiple literary elements within the text so that in the future, students will have more elements to choose from when they produce future analyses of a literary text.

References

- Anderson, M. T. (2002). *Feed*. Cambridge, MA: Candlewick Press.
- Bailey, N. M. (2009). It makes it more real: Teaching new literacies in a secondary English classroom. *English Education, 41*, 207-234.
- Dalton, B., & Proctor, C. P. (2008). The changing landscape of text and comprehension in the age of new literacies. In J. Coiro, M. Knobel, C. Lankshear, & D. J. Leu (Eds.), *Handbook of Research on New Literacies* (pp. 297-324). New York, NY: Routledge.
- Kress, G., & Van Leeuwen, T. (1996). *Reading images: The grammar of visual design*. London, England: Routledge.
- Leu, D. J., & Kinzer, C. K. (2000). The convergence of literary instruction with networked technologies for information and communication. *Reading Research Quarterly, 35*(1), 108-127.
- Pierce, C. P. (1934). *Collected papers: volume V. Pragmatism and pragmaticism*. Cambridge, MA: Harvard University Press.
- Rozema, R. (2007). The book report, version 2.0: podcasting on young adult novels. *Journal of Adolescent and Adult Literacy, 97*(1), 31-36.
- Street, B. V. (1984). *Literacy in theory and practice*. Cambridge, MA: Cambridge University Press.
- Suhor, C. (1984). Towards a semiotic-based curriculum. *Journal of Curriculum Studies, 16*(3), 247-257.
- Vygotsky, L. (1986). *Thought and language*. (A. Lozulin, Trans.). Cambridge, MA: The MIT Press.

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Improving Secondary School Students' Achievement and Retention in Biology Through Video-based Multimedia Instruction

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The study examined the effects of video-based multimedia instruction on secondary school students' achievement and retention in biology. In Nigeria, 120 students (60 boys and 60 girls) were randomly selected from four secondary schools assigned either into one of three experimental groups: Animation + Narration; Animation + On-screen Text; Animation + Narration + On-screen Text or a control group. The pretest, posttest experimental, and control group design was adopted. A 50-item multiple-choice objective test termed Biology Achievement Test (BAT) was used for collecting data. The validated BAT was tested for reliability using Kuder Richardson (KR20), which yielded 0.89. T-test, analysis of covariance (ANCOVA), and Scheffe's post-hoc analysis were used in determining the significant differences among the four groups. The results showed that there was no statistically significant difference among the experimental groups. Generally, students under multimedia instruction performed better than their colleagues in the conventional teaching method. However, students in conventional teaching method had better retention than other groups.

Biology is a natural science that deals with the living world: How the world is structured, how it functions and what these functions are, how it develops, how living things came into existence, and how they react to one another and with their environment (Umar, 2011). It is a prerequisite subject for many fields of learning that contributes immensely to the technological growth of the nation (Ahmed, 2008). This includes medicines, pharmacy, nursing, agriculture, forestry, biotechnology, nanotechnology, and many other areas (Ahmed & Abimbola, 2011).

Biology is seen as one of the core subjects in Nigerian secondary school curriculum. Because of its importance, more students enrolled for biology in the senior secondary school certificate examination (SSCE) than for physics and chemistry (West African Examination Council, 2011). Biology is introduced to students at senior secondary school level as a preparatory ground for human development, where career abilities are groomed, and potentials and talents discovered and energized (Federal Republic of Nigeria, 2009). The quality and quantity of science education received by secondary school students are geared toward developing future scientists, technologists, engineers, and related professionals (Kareem, 2003).

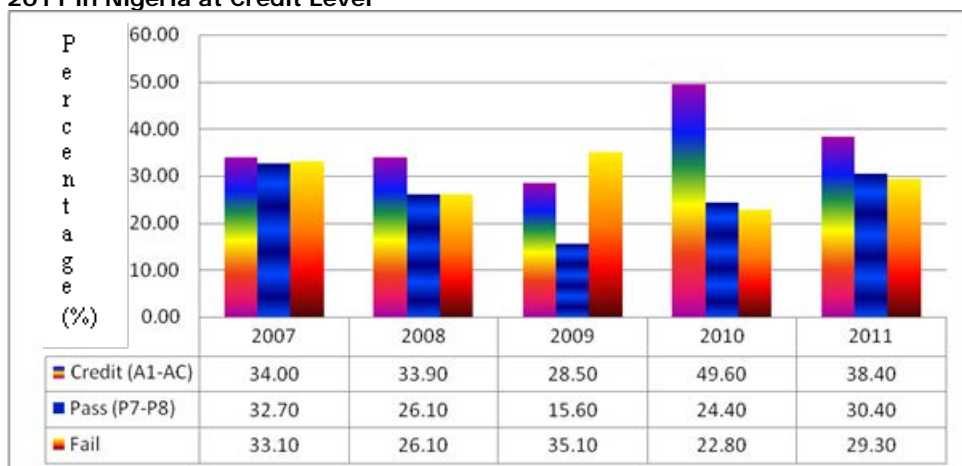
In spite of the importance and popularity of biology among Nigerian students, performance at senior secondary school level has been poor (Ahmed, 2008). The implication of this failure in education is that Nigeria may have shortages of manpower in science- and technology-related disciplines. This may affect Nigeria's vision to become one of the 20 industrialized nations in the world by year 2020.

Poor teaching methods adopted by teachers at senior secondary school level in Nigeria have been identified as one of the major factors contributing to poor performance of students in biology (Ahmed & Abimbola, 2011; Kareem, 2003; Umar, 2011). The conventional teaching method is classroom-based and consists of lectures and direct instructions conducted by the teacher. This teacher-centered method emphasizes learning through the teacher's guidance at all times. Students are expected to listen to lectures and learn from them. The teacher often talks at the students instead of encouraging them to interact, ask questions, or make them understand the lesson thoroughly. Most classes involve rote learning, where students depend on memorization without having a complete understanding of the subject. Just passing the tests, consisting of descriptions, matching, and other forms of indicators, is all that matters to complete the curriculum (Adegoke, 2011; Umar, 2011).

The persistent use of this method makes students passive rather than active learners. It does not promote insightful learning and long-term retention of some abstract concepts in biology (Ahmed, 2008; Ahmed & Abimbola, 2011; Kareem, 2003; Umar, 2011).

The picture today is that biology education is failing. The results of the Senior Secondary School Certificate Examination (SSSCE) of biology students in Nigeria as shown in Figure 1 are highly disturbing, considering the fact that the students would become future scientists.

Figure 1. Performance of Biology Students in May/June WASSCE, 2007-2011 in Nigeria at Credit Level



Source: West African Examination Council 2007 – 2011 Annual Report.

Figure 1 shows the percentage of students that passed biology at the Senior School Certificate Examination (SSCE) conducted by the West African Examination Council (WAEC). As the table indicates, the number of students that passed biology at credit level (A1-C6) was consistently less than 50% for the past five years (2007-2011) in Nigeria (West African Examination Council, 2011).

From research evidence, educators see the pressing need to reconsider the techniques and methods of instruction at senior secondary school level. To address these challenges, there is need for an instructional system that is supported by

technology for meaningful learning. In this 21st century, a motivating and captivating approach should be encouraged to help students better learn, understand, and retain biology concepts and promote their future involvement. One of the promising approaches, according to Adegoke (2010); Kuti (2006); Mayer, Dow, and Mayer (2003); and Moreno and Mayer (2000), involves multimedia presentations supported in visual and verbal formats supplemented with pictures, animations, texts, and narration.

In defining multimedia learning, it is useful to distinguish among media, mode, and modality. Media refers to the system used to present instruction, such as a book-based medium, video-based medium or a computer-based medium. Mode refers to the format used to represent the lesson, such as words versus pictures. Modality refers to the information processing channel used by the learner to process the information, such as auditory versus visual (Mayer, 2005). This study focuses on how specific combinations of modes and modalities may affect students' learning of scientific explanations; for example, how visual-verbal material (i.e., text) or auditory-verbal material (i.e., narration) is combined with visual-non-verbal materials (i.e., graphics, video or animations). Students' interest and retention could be aroused and retained through the use of multimedia instructional approach (Adegoke, 2010). Starbek, Eriavec, and Peklai (2010) reported that students acquired better knowledge retention and improved comprehension skills more than the other groups when taught genetics with multimedia. Similarly, Achebe (2008) and Gambari and Zubairu (2008) found that students who were taught food and nutrition at senior secondary school level, and pupils taught primary science at nursery and primary school levels, performed better and had better retention than those taught with traditional methods respectively.

This study focuses on how specific combinations of modes and modalities may affect students' learning of scientific explanations...

According to Kim and Gilman (2008), it is necessary to apply learning theories in designing effective multimedia instruction. For instance, Mayer and his colleagues propounded six principles of multimedia learning: (a) the multimedia principle – students learn better from words and pictures than from words alone; (b) the spatial contiguity principle - students learn better when corresponding words and pictures are presented close or next to each other rather than far apart on the page or screen; (c) the temporal contiguity principle – students learn better when corresponding words and pictures are presented simultaneously rather than successively; (d) the coherence principle – students learn better when extraneous words, pictures, and sounds are excluded rather than included; (e) the modality principle – students learn better when words in a multimedia are presented as spoken rather than printed text; (f) the redundancy principle – students learn better from animation and narration than from animation, narration, and on-screen text (Mayer, 2001).

According to Adegoke (2011), all six principles have been proven repeatedly in empirical research e.g., Mayer, Bove, Bryman, Mars, and Tapangco (1996) for multimedia principle; Mousavi, Low and Sweller (1995) for modality principle; Mayer, Heiser, and Lonns (2001); Moreno & Mayer (2000); Tabbers, Martens, and Van-Merriëboer (2004) for redundancy principle. However, Thalheimer (2004) has reported findings that were not in consonance with Mayer's (2001) multimedia learning principle. For instance, Muller, Lee, and Sharma (2008) found that the redundancy principle did not transfer to normal classroom situations. In their study, Muller et al. (2008) suggested that addition of interesting information may help maintain the learners' interest in a normal classroom environment.

The effective use of animation and its positive results on instructional message design is made evident by other research. For instance, Nusir, Alsmadi, Al-Kabi, and Shardqah (2010) found that the computer animation learning courseware had positive effects on students' academic performance and achievement level (high and low).

Moreno and Mayer (2000) and Tabbers et al. (2004) found that learning outcomes of students who learnt physics with courseware version of animation + narration were better than their colleagues who learnt physics either with animation + on-screen text or animation + narration + on-screen text. Mayer and Anderson (1991) reported that simultaneous presentation of animation and narration improved learning. However, Grobe and Struges cited in Saibu (2002) found that those taught through the conventional teaching methods achieved a mean posttest score slightly higher than those taught by the audio-tutorial (narration) method.

Studies on animation + narration + on-screen text were made evident by Mubaraq's (2009) results that a still picture is better than (sound) words, animation better than a still picture, and sound better than silence. This was supported by Adegoke (2010), Adegoke (2011), and Chuang (1999) in their studies which examined the effect of animation, narration, and on screen text-based materials when combined simultaneously; the result showed that students in the animation + narration + on-screen text group scored significantly higher on the postphysics achievement test than their colleagues who were in the animation + narration only group, as well as those who were in the animation + on-screen text group. These studies were also not in agreement with the redundancy principle. However, Okwo and Asadu (2002) reported that three media (video, audio + picture, and audio) were found to be equally effective with no significant difference effect among the means when used for teaching physics.

...it is well recognized that multimedia remains the key towards improving learning outcomes.

From the foregoing, it is well recognized that multimedia remains the key towards improving learning outcomes. However, the extent to which this has been achieved has not yet been addressed in biology education. Therefore, this study investigates improving secondary school students' achievement and retention in biology through video-based multimedia instruction.

Purpose of the Study

The main purpose of this study was to investigate whether video-based multimedia instruction could improve secondary school students' achievement and retention in biology.

Specifically, the study examined the effects of:

- (i) animation + narration, animation + on-screen text, and animation + narration + on-screen text packages and those exposed to conventional teaching method as posttest.
- (ii) animation + narration, animation + on-screen text, and animation + narration + on-screen text packages and those exposed to conventional teaching method as delayed posttest.

Research Questions

- (i) What are the differences in the mean achievement scores of senior secondary school biology students exposed to animation + narration, animation + on-screen text, and animation + on-screen text + narration instructional packages?
- (ii) What are the differences in the mean retention scores of senior secondary school biology students exposed to the VBMI instructional packages?

Research Hypotheses

The following hypotheses were formulated and tested at 0.05 level:

H₁: There is no significant difference in the mean achievement scores of senior secondary school biology students exposed to VBM instructional packages, and those exposed to conventional teaching method.

H₂: There is no significant difference in the mean retention scores of senior secondary school biology students exposed to the same instructional packages and those exposed to conventional teaching method.

Methodology

The research design adopted for the study was a pretest, posttest experimental control group design. The study involved four levels of independent primary variable (three treatments and a control) on students' achievement in Biology. The design layout is as shown in Table 1.

Table 1

Research Design Layout

Groups	Pretest	Treatment	Posttest	Retention Test
Experimental Group I	O ₁	A + N	O ₂	O ₃
Experimental Group II	O ₄	A + T	O ₅	O ₆
Experimental Group III	O ₇	A + N + T	O ₈	O ₉
Control Group	O ₁₀	X ₀	O ₁₁	O ₁₂

Key:

Where:

A + N = Animation + Narration

A + T = Animation + On-screen Text

A + N + T = Animation + Narration + On-screen Text

X₀ = No Treatment (Conventional Teaching Method)

The population of the study comprised all senior secondary class two (SSII) students. The students' population consisted of 2010/2011 set obtained from Abuja Education Board. The choice of SS II students ensured that students used for the study were already familiar with the course and not preparing for any external examination.

A multistage sampling technique was used for the allocation of schools for the study. At first stage, purposive sampling technique was used to select four co-educational secondary schools from Gwagwalada Area Council, Abuja, Nigeria, that have computers, Liquid Crystal Display (LCD) projectors, and other facilities. Second, the schools were randomly assigned to experimental groups and control group (conventional teaching method) through hat draw method. Thirdly, simple sampling technique was used to select the 120 SSII biology students. There were four groups and each group had 30 students.

Biology Achievement Test (BAT) was used in collecting data for the study. The BAT consists of 50 multiple choice objective items with five options (A - E) adapted from past examinations of West African Examination Council (West African Examination Council, May/June, 1988-2011) and National Examination Council (NECO, June/July, 1988-2011). BAT was validated by experts in biology education and test and measurement, and its reliability coefficient determined as 0.79 using Kuder Richardson (KR20). The same instrument was re-used for the retention test after four weeks.

Video-Based Multimedia Instructional (VBMI) packages were developed and used as a treatment instrument for the study. The packages consist of concepts of fungi in biology. The necessity for researcher-made VBMI packages was based on

the fact that the commercially produced instructional packages are not directly relevant to the topic or objectives to be achieved in this study. Thus, developing a VBMI package for this study was inevitable.

The VBMI packages were validated by biology experts and educational technology specialists. Four senior lecturers from Biology Education Department, Federal University of Technology, Minna, Nigeria; four senior lecturers from Educational Technology, University of Ilorin, Nigeria; four biology teachers from senior secondary schools in Minna; and four subject experts in the Test and Measurement Department, National Examination Council (NECO), Nigeria, all validated the content of biology, and the appropriateness and structure of VBMI packages. The three packages were field tested on some selected students within the population but outside the sampled schools. The comments and observations from valuers and students were used to modify the packages. The biology content for experimental groups was produced on a CD-ROM and installed in the system, while the control group used the same content, but was not exposed to VBMI packages.

Experimental procedure for data collection included various stages. The researchers visited the selected schools and sought the cooperation of their students and staff. The biology teachers were then trained as research assistants in the use of the video-based multimedia instructional (VBMI) packages. Biology Achievement Test (BAT) was administered to sample students as pretest to ascertain the academic equivalence of the students before the treatments. The treatment was administered for four weeks. The VBMI packages were projected onto the screen via LCD projector. Students read, listened, and watched the video of the lesson based on the mode of multimedia instructional approaches to different groups. After class presentation, students had opportunities of interacting with the animation by clicking on Next, Previous, Pause, and Stop buttons at their convenience using standalone computer.

Experimental Group I: Animation + Narration only: Thirty students in this group watched the video which showed animations depicting the explanations of the fungi concepts along with concurrent narration by a female voice.

Experimental Group II: Animation + On-Screen text only: The students in this group watched the video which showed animations depicting concepts of yeast, fungi, and production of bread, with concurrent presentation of on-screen text. To reduce cognitive load, the corresponding words and picture were presented next to each other on the page.

Experimental Group III: Animation + On-Screen Text + Narration: Thirty students were in this group. The students watched the video, which showed animations depicting the explanations of concepts of yeast, fungi, and production of bread via narration by a female voice along with concurrent on-screen text.

Control Group: Conventional Teaching Method: The control group was exposed to lecture method. The subject teacher presented the lesson using charts, drawings, and pictures to explain the concept of yeast, fungi, and production of bread. The students listened and wrote down some key points during presentation.

Immediately after four weeks of treatment, BAT was administered as posttest to measure the achievement of different groups. Four weeks after the posttest, BAT was reshuffled and administered as a retention test. The scores obtained were subjected to data analysis based on the formulated hypotheses. Analysis of covariance (ANCOVA) and Scheffe's post-hoc analysis was employed. The significance of the various statistical analyses was ascertained at 0.05 alpha level. The research design adopted for the study was a pretest, posttest experimental control group design. The study involved four levels of independent primary variable (three treatments and a control) on students' achievement in Biology. The design layout is as shown in Table 1.

Results

The results are presented based on the research hypotheses:

Hypothesis One: There is no significant difference in the mean achievement scores of senior secondary school biology students exposed to animation + narration, animation + on-screen text, and animation + on-screen text + narration instructional packages, and those exposed to conventional teaching method. To determine whether there was significant difference in the posttest mean scores of the students in experimental groups with VBM instructional packages and those in control group (conventional teaching method), data were analyzed using the analysis of covariance (ANCOVA). Table 2 contains the result of the analysis.

Table 2

ANCOVA Posttest on Experimental Groups I, II, III and Control (CTM) Group

Source of Variation	Sum of Square	df	Mean Square	F	Significance of F
Covariate (Pre-test)	114.767	1	114.767	1.930	0.167
Main Effect (Treatment)	19672.072	3	6557.357	110.299	0.000
Model	19672.467	4	4918.117	82.726	0.000
Residual	6836.833	115	59.451		
Total	26509.300	120			

Table 2 shows that an $F(1, 115) = 110.299, p = 0.000$ for the main effect (treatment) was significant. This indicates that the method of instruction produced a significant effect on the posttest mean scores of students when covariate effect (pretest) was controlled. The result indicates that there was significant difference between the students exposed to VBMI (animation + narration; animation + on-screen text; and animation + on-screen text + narration instructional packages) and those exposed to conventional teaching method (CTM). Hence, H_1 was rejected. Therefore, there is significant difference among students taught biology with VBMI packages and conventional teaching method. Scheffe's post-hoc analysis was further carried out to determine the area of differences in Table 3.

Table 3

Scheffe's Post-hoc Analysis of the Groups Mean Scores

Groups	Mean Scores	Group I (A+N)	Group II (A+T)	Group III (A+N+T)	Group IV (CTM)
Group I	73.33		0.130	0.981	*0.000
Group II	69.40	0.130		0.110	*0.000
Group III	73.73	0.981	0.110		*0.000
Group IV	42.93	*0.000	*0.000	*0.000	

* The mean difference is significant at the 0.05 level.

The results in Table 3 indicate that there was significant difference in the posttest mean scores of students exposed to A+N ($X=73.33$) and CTM ($X = 42.93$) in favour of experimental group I (A+N), that is, those exposed to Animation + Narration. The results also indicate that significant difference exists in the posttest scores of students exposed to A+T ($X = 69.40$) and CTM (42.93) in favour of experiment group II. In addition, the results show that students were exposed to

A+N+T (X= 73.73) and CTM (42.93) in favour of experimental group III. This implies that experimental groups outperformed the control group.

The performances of students in the four groups were further compared based on the mean gain scores between the pretest and posttest for each group, and the results are shown in Table 4 graphically illustrated in Figure 2.

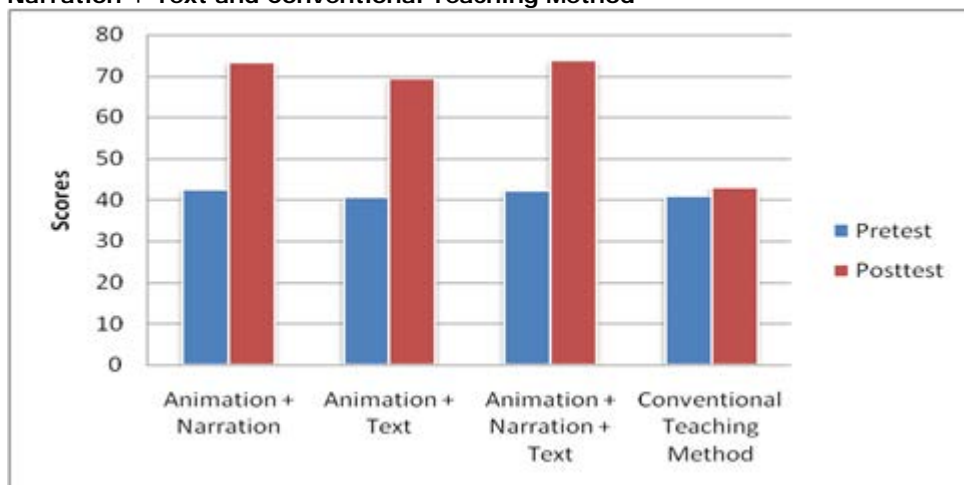
Table 4

Mean Gain Scores for Treatment and Control Groups

Groups	Pretest	Posttest	Mean Gain Score
Animation + Narration (A + N)	42.57	73.33	30.76
Animation + Text (A + T)	40.53	69.40	28.87
Animation + Narration + Text (A + N + T)	42.30	73.73	31.43
Conventional Teaching Method (L)	40.77	42.93	2.16

From Table 4 it was observed that all the groups had improved performance in posttesting. For instance, animation + narration + on-screen text had the highest mean gain score of 31.43, followed by animation + narration with the mean gain score of 30.76; then, animation + text with the mean gain score of 28.87, while the conventional teaching method had the least mean gain score of 2.16. This implies that all the groups benefited from the treatment, with animation + narration + on-screen text having the best achievement, as illustrated in Figure 2.

Figure 2. Graphical Illustration of Students’ Posttest Achievement in Biology Using Animation + Narration, Animation + Text, Animation + Narration + Text and Conventional Teaching Method



Hypothesis Two: There is no significant difference in the mean retention scores of senior secondary school biology students exposed to VBMI packages, and those exposed to conventional teaching method.

To determine whether there were significant differences in the retention mean scores of groups with the VBMI packages, and those exposed to conventional teaching method, data were analyzed using the analysis of covariance (ANCOVA), as shown in Table 5.

Table 5

ANCOVA Posttest on Experimental Groups I, II, III and Control (CTM) Group

Source of Variation	Sum of Square	df	Mean Square	F	Significance of F
Covariate (Pretest)	142.121	1	142.121	2.384	0.125
Main Effect (Treatment)	3629.919	3	1209.973	20.292	0.000
Model	3697.721	4	924.430	15.504	0.000
Residual	6857.079	115	59.627		
Total	323900.000	120			

Table 5 shows that an $F(1, 115) = 20.292, p = 0.000$ for the main effect (treatment) was significant. This indicates that the method of instruction produced a significant effect on the retention mean scores of students when covariate effect (pretest) was controlled. The result indicates that there was significant difference among the students exposed to VBMI (animation + narration; animation + on-screen text; and animation + on-screen text + narration instructional packages) and those exposed to conventional teaching method (CTM). Hence, H_2 was rejected. Therefore, there is significant difference in the retention test among students taught biology with VBMI packages and conventional teaching method. Scheffe's post-hoc analysis was further carried out to determine the area of differences in Table 6.

In order to establish the direction of significant differences among the four groups, Scheffe's post-hoc analysis was employed as shown in Table 7.

Table 6

Scheffe's Post-hoc Analyses of the Groups' Mean Scores

Groups	Mean Scores	Group I (A+N)	Group II (A+T)	Group III (A+N+T)	Group IV (CTM)
Group I	51.27		0.888	*0.020	*0.000
Group II	52.87	0.888		0.132	*0.000
Group III	57.67	*0.020	0.132		*0.001
Group IV	42.60	*0.001	*0.000	*0.000	

* The mean difference is significant at the 0.05 level.

The results in Table 6 indicates that there was significant difference in the retention mean scores of students exposed to A+N ($X=51.27$), A+N+T (57.67) and CM ($X = 42.60$) in favour of experimental group III (A+N+T) followed by experimental group II (A+T). Table 6 also indicates that significant difference exists in the retention scores of students exposed to A+T ($X = 52.87$) and CTM (42.60) in favour of experiment group II. In addition, the results show significant difference between students exposed to A+N+T ($X= 57.67$), A+N (51.27) and CTM (42.60) in favour of experimental group III, followed by experimental group I. However, no significant difference exists between experimental groups II and III.

The achievements of students in the four groups were further compared based on the mean gain score between the posttest and retention test for each group. The results are shown in Table 7 and graphically illustrated in Figure 3.

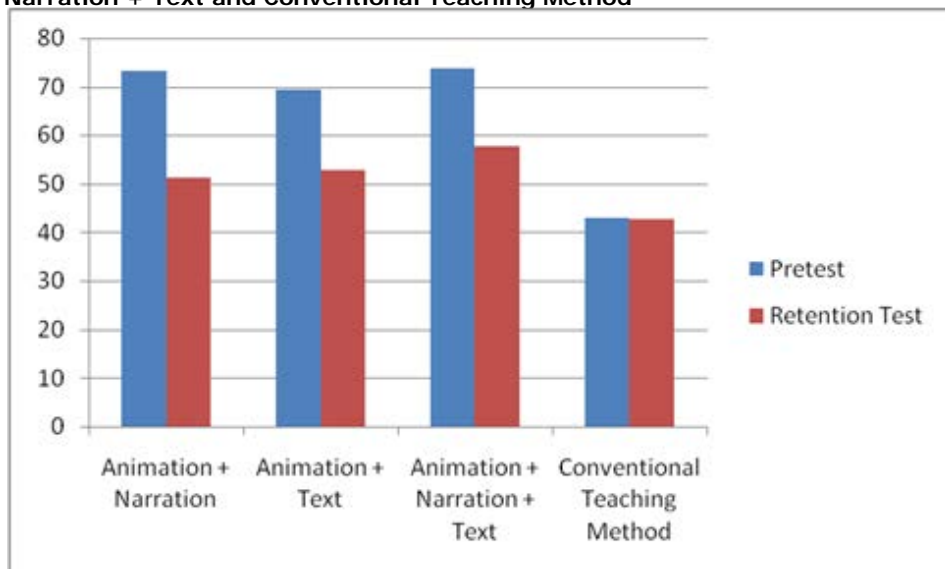
Table 7

Mean Gain Scores for Treatment and Control Groups

Groups	Posttest	Retention Test	Mean Gain Score
Animation + Narration (A+N)	73.33	51.27	22.06
Animation + Text (A + T)	69.40	52.87	16.53
Animation + Narration + Text (A + N + T)	73.73	57.67	16.06
Conventional Teaching Method (L)	42.93	42.60	0.33

Table 7 showed that the groups' achievement dropped after four weeks of treatment. For instance, the mean gain score of 22.06 was obtained by groups in animation + narration; 16.53 by animation + text; animation + narration + text had 16.06, while the conventional teaching method had mean gain difference of 0.33. This implies that conventional teaching method retained more than Animation + Narration, followed by Animation+ Text, then by Animation + Narration.

Figure 3. Graphical Illustration of Students' Retention Achievement in Biology Using Animation + Narration, Animation + Text, Animation + Narration + Text and Conventional Teaching Method



Discussion

H₁: There is no significant difference in the mean achievement scores of senior secondary school biology students exposed to animation + narration, animation + on-screen text, and animation + on-screen text + narration instructional packages and those exposed to conventional teaching method.

The results of Hypothesis One revealed that there was in fact significant difference among students' achievements in favour of the experimental groups against control group. The results indicated that students exposed to animation + narration outperformed those exposed to conventional teaching method; similarly, those exposed to animation + text performed better than those exposed to conventional teaching method; finally, those exposed to animation + narration + on-screen text performed better than those taught with conventional teaching method.

...students exposed to animation + narration outperformed those exposed to conventional teaching method...

The results concurred with the findings of Okwo and Asadu (2002), who reported that three media (video, audio + picture, and audio) were found to be equally effective with no significant difference effect among the means when used for teaching physics. This also agrees with Sawsan et al. (2011) who found that the computer animation learning courseware had positive effects on students' academic performance and achievement level (high and low) and their learning styles.

Teachers should expose biology students to video-based multimedia instructional strategies so as to promote effective and active learning...

However, the findings contradicts those of Grobe and Struges cited in Saibu (2002), who found that those students taught through the conventional teaching method achieved a mean posttest score slightly higher than those taught by the audio-tutorial (narration) method.

The results of this experiment failed to validate Mayer's (2001) multimedia redundancy principle. They also disagree with the findings of Chuang (1999), Adegoke (2010), and Adegoke (2011), who found that students in the animation + on-screen text + narration performed better than those in animation + on-screen text, animation + narration and lecture method. These findings are not in consonance with the findings of Moreno and Mayer (2000) and Tabbers et al. (2004), who found that learning outcomes of students who learnt physics with courseware version of animation + narration were better than their colleagues who learnt physics either with animation + on-screen text or with animation + narration + on-screen text.

H₂: There is no significant difference in the mean retention scores of senior secondary school biology students exposed to VBM instructional packages and those exposed to conventional teaching method.

The results of Hypothesis Two showed that there is significant difference in retention achievement of students taught biology with video-based multimedia instructional packages. Students in animation + narration, and those in animation + narration + on-screen text groups had better retention than their colleagues in animation + on-screen text and conventional teaching method. These results agree with the findings of Gambari and Zubairu (2008) and Achebe (2008); Moreno and Mayer (2000); Tabbers et al. (2004); and Starbek et al. (2010), who found that students taught genetics with multimedia acquired better knowledge, retention, and improved comprehension skills than other groups.

Conclusion

This paper has examined the multimedia, theoretical framework for designing effective multimedia for biology at secondary school level, and relevant studies on modes of multimedia. It is the view of the authors that there is still a wide gap to be bridged in the area of teaching and learning. The innovative technology using video-based animation seems to be the answer and the bridge. The concurrent use of animation + narration + on-screen text in an instructional interface was more effective in teaching the biological concepts of fungi. However, it did not improve students' retention.

Recommendations

Based on the major findings of this study, the following recommendations are offered. Teachers should expose biology students to video-based multimedia instructional strategies so as to promote effective and active learning, motivation, learning by doing, and learning by experience among students. Also, teacher education programmes in Nigerian tertiary institutions should be improved upon to prepare teachers who can apply innovative approaches (multimedia instructional strategies) that will promote effective teaching and learning. Also, instructional designers and instructional material developers should develop relevant video-based instructional packages for use within the Nigerian school systems.

In addition, this study established that conventional teaching method improved students' retention better than video-based multimedia packages. Therefore, future research should be conducted focusing on the technology-enhanced instructional settings rather than on conventional teaching method on the retention of students in learning processes should be conducted.

References

- Achebe, A. E. (2008). Effect of videotape instructional package on achievement and retention in food and nutrition at senior secondary school level in Minna, Niger State. *JOSTMED*, 1(1), 33-39.
- Adegoke, B. A. (2010). Integrating animations, narrations and textual materials for improving students' learning outcomes in senior secondary school physics. *Electronic Journal of Research in Educational Psychology*, 8(2), 725-748.
- Adegoke, B. A. (2011). Effect of multimedia instruction on senior secondary school students' achievement in Physics. *European Journal of Educational Studies*, 3(3), 537-541.
- Ahmed, M. A. (2008). *Influence of personality factors on biology lecturers' assessment of difficulty levels of genetics concepts in Nigerian colleges of education* (Unpublished doctoral thesis). University of Ilorin, Ilorin, Nigeria.
- Ahmed, M. A., & Abimbola, I. O. (2011). Influence of teaching experience and school location on biology teachers' rating of the difficult levels of nutrition concepts in Ilorin, Nigeria. *JOSTMED*, 7(2), 52-61.
- Chuang, Y. (1999). Teaching in a multimedia computer Environment: A study of the effects of learning style, gender and math achievement. *Interactive Multimedia Electronic Journal of Computer – Enhanced Learning*, 1(1).
- Federal Republic of Nigeria. (2009). *National policy on education*. Abuja: NERDC Press.
- Gambari, A. I., & Zubairu, A. A. (2008). *Impact of videotape instructional package on achievement and retention in primary science among primary pupils in Niger State, Nigeria*. Paper presented at the meeting of the 2nd SSSE Annual National Conference, Federal University of Technology, Minna, Nigeria.
- Kareem, L. O. (2003). *Effects of audio-graphic self-instructional packages on senior secondary school students' performance in biology in Ilorin, Nigeria*. Unpublished PhD thesis of the University of Ilorin, Ilorin.
- Kim, D., & Gilman, D. A. (2008). Effects of text, audio, and graphic aids in multimedia instruction for vocabulary learning. *Educational Technology & Society*, 11(3), 114-126.

- Mubaraq, D. K. (2009). *The effects of using different types of multimedia presentations on learners' understanding of physics concept* (Unpublished doctoral thesis). Northern Illinois University, DeKalb, IL.
- Kuti, J. B. (2006). *Effect of multimedia instructional strategy on Senior Secondary Students' learning outcomes in Physics in Ogun State, Nigeria* (Unpublished master's project). University of Ibadan, Ibadan, Nigeria.
- Mayer, R. E. (2001). *Multimedia learning*. Cambridge, UK: Cambridge Press University.
- Mayer, R. E. (2005). Cognitive theory of multimedia learning. In R.E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 31-48). New York, NY: University of Cambridge.
- Mayer, R. E., & Anderson, R. B. (1991). Animations need narrations: An experimental test of a dual-coding hypothesis. *Journal of Educational Psychology, 83*, 484-490.
- Mayer, R. E., Bove, W., Bryman, A., Mars, R., & Tapangco, L. (1996). When less is more: Meaningful learning from visual and verbal summaries of science textbook lessons. *Journal of Educational Psychology, 95*, 806-813.
- Mayer, R. E., Dow, G. T., & Mayer, S. (2003). Multimedia Learning in an interactive self-explaining environment: What works in the design of agent-based micro worlds? *Journal of Educational Psychology, 95*, 806-813.
- Mayer, R. E., Heiser, J., & Lonns, S. (2001). Cognitive Constraints on Multimedia learning: When presenting more material results in less understanding. *Journal of Educational Psychology, 93*, 187-198.
- Moreno, R., & Mayer, R. E. (2000). A coherence effect in multimedia learning. The case of minimizing irrelevant sounds in the design of multimedia instructional messages. *Journal of Educational Psychology, 97*, 117-125.
- Mousavi, S. Y., Low, R., & Sweller, J. (1995). Reducing cognitive load by mixing auditory and visual presentation modes. *Journal of Educational Psychology, 87*, 319-334.
- Muller, D. A., Lee, K. J., & Sharma, M. D. (2008). Coherence or interest: Which is most important in online multimedia learning? *Australasian Journal of Educational Technology, 24*, 211-221.
- Nusir, S., Alsmadi, I., Al-Kabi, M., & Shardaqa, F. (2010, April). *Designing an interactive multimedia learning system for the children of primary schools in Jordan*. Paper presented at the meeting of the IEEE Global Engineering Education Conference, Amman, Jordan.
- Okwo, F. A., & Asadu, C. O. (2002). Comparative effect of three modes of mediated instruction on secondary school students achievement in physics. *International Journal of Arts and Technology Education, 2*(1), 137-144.
- Saibu, A. (2002). *Effects of replay and ability on students' skill acquisition in slabbing when exposed to video demonstration* (Unpublished master's thesis). University of Nigeria, Nsukka, Nigeria.
- Starbek, P., Eriavec, M. S., & Peklai, C. (2010). Teaching genetics with multimedia results in better acquisition of knowledge and improvement in comprehension. *Journal of Computer Assisted Learning, 26*(3), 214-224.
- Tabbers, K. H., Martens, L. R., & Van-Merriëboer, J. J. (2004). Multimedia instructions and cognitive load theory: Effects of modality and cueing. *British Journal of Educational Psychology, 74*(1), 71-82.

Thalheimer, W. (2004). *Bells, whistles, neon, and purple prose: When interesting words, sounds and visuals hurt learning and performance – a review of the seductive-augmentation research*. Retrieved from http://www.work-learning.com/seductive_augmentation.htm

Umar, A. A. (2011). Effects of biology practical activities on students' process skill acquisition in Minna, Niger State, Nigeria. *JOSTMED*, 7(2), 118–126.

West African Examination Council. (2011). *Chief Examiners' reports*. Lagos: WAEC.

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Challenging Multiple-Choice Questions to Engage Critical Thinking

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This article examines a technique for engaging critical thinking on multiple-choice exams. University students were encouraged to “challenge” the validity of any exam question they believed to be unfair (e.g., more than one equally correct answer, ambiguous wording, etc.). The number of valid challenges a student wrote was a better predictor of exam scores than the number of invalid challenges or GPA. The technique also allows instructors to gain insight into the sources of students’ errors that may be useful in improving instruction.

So-called “multiple-guess” exams have a rather bad reputation in certain quarters of academe. Despite their numerous detractors in the USA (e.g., Gould, 1996; Sacks, 2000) and abroad (Last, 2006), multiple-choice tests are frequently employed by those who teach large classes, primarily because grading large numbers of essay exams is prohibitively time-consuming. However, many professors look askance at this assessment technique, asserting that multiple-choice questions tend to focus on rote memory rather than comprehension of the subject matter or thinking critically about it. Here, we present evidence that encouraging students to “challenge the question” is associated with higher scores on exams and can provide instructors with new information to improve instruction.

It is widely agreed that critical thinking is one of the foremost goals of higher education, but there is less agreement on what critical thinking is, or what constitutes evidence of it. Jones and his colleagues (Jones, Dougherty, Fantaske, & Hoffman, 1997; Jones et al., 1995) found a consensus among 500 educators, policy makers, and employers concerning the definition of critical thinking: “...critical thinking describes reasoning in an open-ended manner, with an unlimited number of solutions. It involves constructing a situation and supporting the reasoning that went into a conclusion” (Halpern, 2001, p. 254). In defining critical thinking, Halpern (2001) notes that “When we think critically, we are evaluating the outcomes of our thought processes—how good a decision is or how well a problem is solved” (p. 254).

The inherently forced-choice nature of multiple-choice questions would seem to preclude them as indicators of or occasions for critical thinking. However, when students answer multiple-choice questions they do evaluate multiple response options in order to decide how well each solves the problem. Thus, multiple-choice questions would appear to satisfy at least that part of the definition of critical thinking. If multiple-choice questions also posed the opportunity for open-ended responding, such as arguing that the question itself is inherently flawed, or that none of the options is superior to the others, then multiple-choice questions might provide clearer evidence of critical thinking.

Previous research identifies relationships between critical thinking and multiple-choice test performance. Several sources indicate that multiple-choice test items involve critical thinking processes (Appleby, 1990; Scialfa, Legare, Wenger, & Dingley, 2001; Williams & Clark, 2004; Yoder & Hochevar, 2005). Wallace and

...encourages students to ‘challenge the question’ is associated with higher scores on exams and can provide instructors with new information to improve instruction.

Williams (2003) and Williams, Oliver, Allin, Winn, and Booher (2003) found that scores on a standardized measure of critical thinking correlated positively and significantly with college students' performance on multiple-choice tests. However, we know of no prior research that has attempted to engage critical thinking on multiple-choice exams by encouraging students to challenge the validity of the exam questions themselves.

Initially, we developed the "Question Challenge" policy as a way to deal with students' complaints about the difficulty of our multiple-choice exam questions. In an effort to avoid "sour grapes" complaints after the students had received their test scores, we informed students that if they thought a question was unfair, they could write a challenge to the question before they knew whether or not they got it right. If their challenge convinced the instructor that the question was unfair, then everyone in the class would receive an extra point, and this extra point would be named in honor of the successful challenger, as a form of social reinforcement for thinking critically about questions.

The challenge policy has been well-received by students. Furthermore, students who wrote challenges, even challenges that were not accepted, seemed to be getting better scores on the exams. In addition, the unsuccessful challenges provided the instructor with useful insights into the student's thought processes. It appeared that the challenge policy induced a critical thinking mental set that encouraged students to analyze the question, rather than just reacting to it on the basis of rote association. If this is true, then students who write challenges should score higher on the exam than those who do not. Further, those whose critical thinking is more accurate, as indicated by writing challenges that were valid, should score even higher than those whose challenges were judged to be invalid.

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Here, we report a study designed to test three hypotheses: (a) the number of valid challenges that students wrote would be correlated with their scores on multiple-choice exams, (b) the number of invalid challenges would also be correlated with multiple-choice exam scores, and (c) the number of valid challenges would be a significantly better predictor of exam scores than the number of invalid challenges. An obvious "third variable explanation" would be that general scholastic ability, rather than a specific critical thinking mental set, could be the source of higher scores on multiple-choice exams and writing more valid challenges. To address that issue, we compared the relative predictive power of students' GPAs versus their valid and invalid challenges.

Method

Participants

Complete data were available for 10 male and 111 female undergraduate students who were enrolled in a social psychology class. All were native speakers of American English. Mean age was 21.62 (SD = 1.80). The average number of years of college completed was 3.0 (SD = .63).

Procedure

Each exam contained approximately 25 items based on the text (Taylor, Peplau, & Sears, 2005) and 25 from lectures, videos, Internet exercises, and discussions. All questions were composed by the first author of this study (First Author). Exams covered three or four chapters of the text and occurred approximately every four weeks. On the first page of each exam, the following instructions appeared:

CHALLENGING QUESTIONS: If you think that two or more of the answers are equally correct, or that none of the answers is really correct, or that the question is ambiguously worded, then write the word “CHALLENGE” and the question number at the top of THIS PAGE (PAGE 1). Then, on the back of the last page, write the reason for your challenge. You must explain your challenge well enough that I am convinced that you are correct. For example, “Challenge Question 4 – ambiguous.” is not sufficient. However, “Challenge Question 4 – according to the book, option B ‘modeling’, and option C ‘imitation’ both mean the same thing, learning by watching someone else.” is good enough. Remember, if you challenge a question successfully, then EVERYONE who takes the exam gets an extra point added to their score, and I will name that extra point in your honor. ALWAYS ANSWER EVERY QUESTION, EVEN IF YOU PLAN TO CHALLENGE IT. CHOOSE THE ANSWER THAT YOU THINK I THINK IS CORRECT.

Two content-area experts (the authors) examined the validity of the challenges. A challenge was judged as valid when both experts accepted the argument. For example, one question read:

Which of the following characteristics makes it easier to change a person’s attitude?

- A. internal locus of control.
- B. high-self-esteem.
- C. being highly authoritarian.
- D. being relaxed.

A student wrote the following challenge: “Are you talking about the personality characteristics of the speaker or the listener? The question is ambiguous.” Much to the instructor’s chagrin, this question turns out to be a classic example of “deep structure ambiguity” (Chomsky, 1957), so the challenge was judged to be valid.

In contrast, consider the following question:

To voluntarily help someone without expecting anything in return is called

- A. the norm of social responsibility
- B. empathy
- C. altruism
- D. prosocial behaviors

A student challenged this question, stating “Altruism and prosocial behavior are the same thing. Both are about helping someone without expecting a reward.” In this case, the student’s challenge is invalid, because altruism is the specific subcategory within the more general category of prosocial behavior in which no reward is expected. Interestingly, this invalid challenge reveals the source of the student’s confusion that can be useful for instructing future classes. It reflects a failure to understand how the logic of class inclusion (Inhelder & Piaget, 1964) applies to the relation between these two abstract concepts: All altruistic behaviors are prosocial, but not all prosocial behaviors are altruistic.

Results

Each student’s correct answers, valid, and invalid challenges for exams 3 and 4 were summed. Means (and SD’s) for total exam scores, number of valid challenges, number of invalid challenges, and GPA (as of the beginning of the semester in question) were 81.29 (10.40), .67 (1.02), .86 (1.01), and 3.15 (.60), respectively.

GPA correlated significantly with exam scores, $r(19) = .44$, $p = .022$, but not with the number of valid or invalid challenges. The number of valid challenges was not significantly correlated with the number of invalid challenges, but was significantly correlated with exam scores, $r(19) = .65$, $p = .001$. The number of invalid challenges that students wrote was also significantly correlated with their exam scores, $r(19) = .38$, $p = .045$.

Stepwise multiple regression including GPA, number of valid challenges, and number of invalid challenges as predictors showed that the most efficient model for predicting exam scores involved a single predictor: the number of valid challenges, $R^2 = .43$, $F(1, 19) = 14.09$, $p = .001$. Even when GPA was forced to enter the equation first, the number of valid challenges that a student wrote still accounted for a significant increase in exam score variance, $\text{part-}r = .54$, $t(18) = 3.20$, $p = .005$.

Discussion

The results support all three hypotheses. Writing challenges to multiple-choice questions predicted performance on multiple-choice exams, even if the challenge was invalid. However, the number of valid challenges was a better predictor of exam scores than the number of invalid challenges. It accounted for nearly half of the variance in exam scores and predicting exam scores over and above general academic skill, as measured by the student's GPA at the beginning of the semester.

For valid challenges to account for nearly half of the variance in exam scores suggests that critical thinking can play a role on multiple-choice exams when students are explicitly asked to challenge and critique the questions. Encouraging students to challenge exam questions engages their critical thinking processes and opens a window for the instructor to view what is going on in students' minds when they take multiple-choice exams. For example, we now use information from valid challenges to clarify potential confusions during lectures, such as the aforementioned

Encouraging students to challenge exam questions engages their critical thinking processes and opens a window for the instructor to view what is going on in students' minds when they take multiple-choice exams.

class inclusion relationship between prosocial behavior and altruism. As a result of numerous invalid challenges from students, one of us (Kerkman) now provides examples at the outset of each exam to clarify what he means by "choose the best answer," (e.g., "Rome is in (a) the universe, (b) Europe, (c) Italy, (d) the Coliseum." The best answer is (b), Italy, because it is the most specific answer without being too specific. A small area of Rome lies within the Coliseum, but this answer is too specific, because there is a great deal of Rome that is not in the Coliseum). The Challenge technique also provides the instructor with a way to refine the item-pool from one semester to the next by eliminating flawed questions that have been successfully challenged by students.

Further, the challenge technique makes it clear to the students that the classroom setting is more democratic and less authoritarian than some may initially perceive it to be. This is particularly true of students from other cultures (e.g., most Amerindian and many Asian cultures), where criticizing the instructor is considered to be extremely disrespectful. When the instructor explicitly encourages and rewards students for challenging the instructor's questions, the students know that they have an opportunity for input and a right to "to petition the government for a redress of grievances" (U.S. Const. amend. 1). Thus, the challenge technique described here serves to promote the free and frank exchange of ideas in the classroom setting that is essential to critical thinking in all its forms and has formed the very foundation of the academic enterprise since the time of Socrates.

In conclusion, while there are several strategies that shift test takers to a critical thinking mindset, we propose that there is an additional one involving challenging the actual questions. We argue that there is a deeper processing of questions and responses. The first process is question comprehension and selection of the correct response. The second process involves evaluating the questions for quality. This secondary process is one of the highest levels of Bloom's Taxonomy and demands critical thinking processing. Furthermore, there is a third process of

creating the challenge – creation is the highest level of the Revised Bloom's Taxonomy (Krathwohl, 2002).

While we have found evidence for our claim, it is not yet determined that there may be alternative strategies that may directly activate a "creation" mindset and have the same performance effects. Future research could examine creation strategies and their effects.

It is noteworthy that the challenge technique is quite general and can be readily applied in virtually any content area. In principal, we see no reason why it should be restricted to the multiple-choice format. Matching, short answer, or even essay questions can, and we believe should, be open to criticism by those whose performance evaluations are based on them.

References

- Appleby, D. (1990). A cognitive taxonomy of multiple-choice questions. In Makosky, Sileo, Whittemore, Linda, Landry, Skutley (Eds.), *Activities handbook for the teaching of psychology* (Vol. 3, pp. 79-82). Washington, DC: American Psychological Association.
- Chomsky, N. (1957). *Syntactic structures*. The Hague: Mouton.
- Gould, S. J. (1996). *The mismeasure of man*. New York, NY: W. W. Norton & Company.
- Halpern, D. F. (2001). Why wisdom? *Educational Psychologist*, 36(4), 253-256.
- Inhelder, B., & Piaget, J. (1964). *The early growth of logic in the child*. New York, NY: Harper & Row.
- Jones, E. A., Dougherty, B. C., Fantaske, P., & Hoffman, S. (1997). *Identifying college graduates' essential skills in reading and problem-solving: Perspectives of faculty, employers and policymakers* (Contract No. R117G10037/CDF A84.G, 117). Washington, DC: U.S. Department of Education/OERI.
- Jones, E. A., Hoffman, S., Moore, L. M., Ratcliff, G., Tibbetts, S., & Click, B. A. (1995). *National assessment of college student learning: Identifying college graduates' essential skills in writing, speech and listening, and critical thinking* (NCES 95-001). Washington, DC: U.S. Government Printing Office.
- Krathwohl, D. R. (2002). A revision of Bloom's Taxonomy: An overview. *Theory into Practice*, 41, 212-218.
- Last, J. (2006, June). The dumber-down GCSE exam with no need for writing. *Times Educational Supplement*; June 12, 2006, Issue 4689. Retrieved from http://www.tes.co.uk/search/story/?stor_y_id=2245901
- Sacks, P. (2000). *Standardized minds: The high price of America's testing culture and what we can do about it*. Cambridge, MA: Perseus Books.
- Scialfa, C., Legare, C., Wenger, L., & Dingley, L. (2001). Difficulty and discriminability of introductory psychology test items. *Teaching of Psychology*, 28(1), 11-15.
- Taylor, S. E., Peplau, L. A., & Sears, D. O. (2005). *Social Psychology* (12th ed.). Upper Saddle River, NJ: Pearson Education Inc.
- U.S Const. amend. I
- Wallace, M. A., & Williams, R. L. (2003). Multiple-choice exams: Explanations for student choices. *Teaching of Psychology*, 30(2), 136-138.
- Williams, R., & Clark, L. (2004). College students' ratings of student effort, student ability and teacher input as correlates of student performance on multiple-choice exams. *Educational Research*, 46(3), 231-239.
- Williams, R. L., Oliver, R., Allin, J. L., Winn, B., & Booher, C. S. (2003). Psychological critical thinking as a course predictor and outcome variable. *Teaching of Psychology*, 30(3), 220-223.

Yoder, J., & Hochevar, C. (2005).
Encouraging active learning can improve
students' performance on examinations.
Teaching of Psychology, 32(2), 91-95.

Footnotes

¹ In keeping with standard statistical practice, one female student was deleted from the analyses because her number of challenges was more than three standard deviations above the group mean, and therefore was deemed to be a statistical outlier.

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Call for Papers

Volume 10: *Scholarly Teaching and Learning*

InSight: A Journal of Scholarly Teaching welcomes original manuscripts with a focus on the scholarship of teaching and learning (SoTL) from scholars across the disciplines. We seek articles that address the following: methods and practices of scholarly teaching; critical analyses of the scholarship of teaching and learning; theoretical and empirically-based research articles with practical application possibility; case studies; scholarly analyses and reflective accounts of teaching and learning; teaching narratives that promote conversations about SoTL's value as a tool for advancing student learning.

Articles should present practical and informed applications of teaching, and should address specific issues relating to real classroom experience. Theoretical issues should be rooted in practice. Articles that include student voices and responses are especially welcomed.

Suggested topics include the following:

- Challenges/Responses to the SoTL paradigm
- Practical methods of developing institutional and discipline-specific definitions of SoTL
- Status reports of SoTL's role in a particular discipline
- Essays that offer guidance to faculty new to SoTL, or which outline strategies for support of new faculty
- Examples of SoTL projects at the course or discipline-level
- Intersections of SoTL and service-learning, eLearning, learning communities, and other learning initiatives
- Future directions in SoTL
- Cross-disciplinary and cross-institutional collaborations for promoting SoTL
- Innovative critiques that include specific suggestions for implementation of institutional initiatives for SoTL practices.

Submission Requirements

- *STYLE* - All manuscripts must be formatted in APA style.
- *LENGTH* - Manuscripts should be no more than 12-15 pages (including abstract, references or appendices). Authors are encouraged to include appendices that promote application and integration of materials (i.e., assignments, rubrics, examples, etc.).
- *ABSTRACT* - Each manuscript must be summarized in an abstract of 50 to 100 words.
- *AUTHOR* - Each author should provide his/her full name, title and departmental affiliation, campus address, telephone number, and email address. Each author must also include a brief biography (no more than 100 words per author).
- *FORMAT* - All manuscripts must be submitted via email as attachments in Microsoft Word or Rich Text Format. Do not include personal identifiers within the manuscript. Include contact information only on a separate cover sheet. Each manuscript will be assigned a unique identifier for blind review processes. Send submissions to cetl@park.edu.
- *DEADLINE* - All submissions must be received by **4:00pm on March 1, 2015 (CST)** to be considered for inclusion in Volume 10.

Review Procedures

All submissions are initially screened by the editor for suitability to the journal. Relevant manuscripts are then sent to appropriate reviewers and undergo a rigorous blind peer review. Manuscripts are evaluated for relevance, practical

utility, originality, clarity, significance and the extent to which the submission contributes to the goals of the journal and the ongoing development of the scholarship of teaching and learning.

The review process for publication takes about three months. Authors are provided feedback from the editor and from reviewers.

The CETL office retains the final authority to accept or reject all submitted manuscripts. The final publication will be distributed both in print and online fall 2015.

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INFORMATION FOR CONTRIBUTORS

QUICK TIPS: PREPARING MANUSCRIPTS FOR *INSIGHT*

The following “Quick Tips” provide suggestions and guidance for preparing manuscripts for potential publication in *InSight: A Journal of Scholarly Teaching*. *InSight* is a peer-reviewed publication highlighting the scholarly contributions of postsecondary faculty. As is the nature of refereed journals, acceptance and publication of original manuscripts is a competitive process. The goal of the following information is to assist faculty in preparing manuscripts in a manner that maximizes the chances of publication.

Preparing the Manuscript

The organization and style your manuscript will be largely dictated by the type of submission (e.g., theoretical, empirical, critical reflection, case study, classroom innovation, etc.). Thus, while guidelines will follow to assist you in preparing your manuscript, the key to successful submission is clear, effective communication that highlights the significance and implications of your work to post-secondary teaching and learning in relation to the target topic. To prepare and effectively communicate your scholarly work, the American Psychological Association (2010) provides the following general guidelines:

- Present the problem, question or issue early in the manuscript.
- Show how the issue is grounded, shaped, and directed by theory.
- Connect the issue to previous work in a literature review that is pertinent and informative but not exhaustive.
- State explicitly the hypotheses under investigation or the target of the theoretical review.
- Keep the conclusions within the boundaries of the findings and/or scope of the theory.
- Demonstrate how the study or scholarly approach has helped to address the original issue.
- Identify and discuss what theoretical or practical implications can be drawn from this work.

There is no mandatory format for *InSight* articles; rather authors should organize and present information in a manner that promotes communication and understanding of key points. As you write your manuscript, keep the following points in mind:

- **Title** - Generally speaking, titles should not exceed 15 words and should provide a clear introduction to your article. While it is okay to incorporate “catchy” titles to pique interest, be sure that your title effectively captures the point of your manuscript.
- **Abstract** - Do not underestimate the importance of your abstract. While the abstract is simply a short summary (50-100 words) of your work, it is often the only aspect of your article that individuals read. The abstract provides the basis from which individuals will decide whether or not to read your article, so be certain that your abstract is “accurate, self-contained, nonevaluative, coherent, and readable” (Calfee & Valencia, 2001).
- **Body** - Within the body of a manuscript, information should be organized and sub-headed in a structure that facilitates understanding of key issues. There is not a mandatory format for *InSight* articles; rather authors should use professional guidelines within their discipline to present information in a manner that is easily communicated to readers. For example:

- *Empirical investigations* should be organized according to the traditional format that includes introduction (purpose, literature review, hypothesis), method (participants, materials, procedures), results, and discussion (implications). The following links provide general examples of this type of article:
 - <http://www.thejeo.com/MandernachFinal.pdf>
 - <http://www.athleticInSight.com/Vol7Iss4/Selfesteem.htm>
- *Theoretical articles and literature reviews* should include an introduction (purpose), subheadings for the relevant perspectives and themes, and a detailed section(s) on conclusions (applications, recommendations, implications, etc.). The following links provide general examples of this type of article:
 - <http://www.westga.edu/%7Edistance/ojdla/winter84/royal84.htm>
 - <http://www.westga.edu/%7Edistance/ojdla/winter84/mclean84.htm>
- *Classroom innovation and critical reflections* should be organized via an introduction (purpose, problem, or challenge), relevant background literature, project description, evaluation of effectiveness (may include student feedback, self-reflections, peer-insights, etc.), and conclusions (applications, implications, recommendations, etc.). If describing classroom-based work, please include copies of relevant assignments, handouts, rubrics, etc. as appendices. The following link provides a general example of a critical reflections article:
 - <http://www.compositionstudies.tcu.edu/coursedesigns/online/33-2/ritter.htmlv>

The limited length of *InSight* articles (manuscript should be no more than 10 pages, not including abstract, references or appendices) requires authors to focus on the most significant, relevant factors and implications.

- **References** - Select your references carefully to ensure that your citations include the most current and relevant sources. As you select your references, give preference to published sources that have proven pertinent and valuable to the relevant investigations. The goal is not to incorporate ALL relevant references, but rather to include the most important ones.
- **Tables, Figures, Appendices & Graphics** - Authors are encouraged to include supporting documents to illustrate the findings, relevance or utilization of materials. Particularly relevant are documents that promote easy, efficient integration of suggestions, findings or techniques into the classroom (such as rubrics, assignments, etc.). Supplemental information should enhance, rather than duplicate, information in the text.

The importance of clear, effective communication cannot be highlighted enough. Many manuscripts with relevant, original, applicable ideas will be rejected because authors do not communicate the information in a manner that facilitates easy understanding and application of key points. The value of a manuscript is lost if readers are unable to overcome written communication barriers that prevent use of the knowledge. With this in mind, authors are strongly advised to seek informal feedback from peers and colleagues on manuscripts prior to submission to *InSight*. Requesting informal reviews from relevant professionals can highlight and correct many concerns prior to formal submission, thus improving chances of publication.

References

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.

Calfee, R. & Valencia, R. (2001). *APA Guide to preparing manuscripts for journal publication*. Washington, DC: APA

INFORMATION FOR CONTRIBUTORS

QUICK TIPS: SUBMISSION GUIDELINES FOR *INSIGHT*

The following “Quick Tips” provide suggestions and guidance for submitting manuscripts to *InSight: A Journal of Scholarly Teaching*. *InSight* is a peer-reviewed publication highlighting the scholarly contributions of postsecondary faculty. The following information provides an overview of the purpose; scope and functioning of *InSight* so that faculty may better understand the *InSight* publication process.

Scope & Focus

InSight features theoretical and empirically-based research articles, critical reflection pieces, case studies, and classroom innovations relevant to teaching, learning and assessment. While there are a broad range of acceptable topics, all manuscripts should be supported with theoretical justification, evidence, and/or research (all methods and approaches relevant to qualitative and quantitative research are welcome); all manuscripts should be appropriately grounded in a review of existing literature.

Audience

InSight emphasizes the enhancement of post-secondary education through the professional exchange of scholarly approaches and perspectives applicable to the enrichment of teaching and learning. Relevant to this mission, manuscripts should be geared toward post-secondary faculty and administrators; included in this audience are full-time and adjunct faculty; face-to-face, hybrid and online faculty; tenure and non-tenure track instructors; trainers in corporate, military, and professional fields; adult educators; researchers; and other specialists in education, training, and communications. Recognizing the cross-disciplinary readership of *InSight*, manuscripts should present material generalizable enough to have relevance to post-secondary instructors from a range of disciplines.

Review Process

All submissions are evaluated by a double-blind, peer-review process. The masked nature of the reviews helps ensure impartial evaluation, feedback and decisions concerning your manuscript.

This review process utilized by *InSight* mandates that you should keep the following points in mind when preparing your manuscript:

- Your name and other identifying information should only appear on the title page; the remainder of the manuscript should be written in a more generalized fashion that does not directly divulge authorship.
- All information needs to be explained and supported to the extent that an individual not familiar with a particular institution's mission, vision or structure can still clearly understand the relevance, significance and implications of the article.

Focus of the Review

Prior to dissemination to the reviewers, the *InSight* Managing Editor will conduct a preliminary appraisal for content, substance, and appropriateness to the journal. If the manuscript is clearly inappropriate, the author will be informed and the manuscript returned. Appropriate manuscripts will be electronically sent to two reviewers for blind evaluation. Although there is an attempt to match manuscripts and reviewers according to content, interests, and topical relevance, the broad focus

of the journal dictates that papers be written for applicability to a wide audience. As such, reviewers may not be content experts in a relevant, matching academic discipline.

The manuscript will be reviewed and evaluated according to the following dimensions:

- Relevance - The most important feature of your manuscript is its relevance; the decision to accept or reject a manuscript is typically based on the substantive core of the paper. As such, manuscripts should introduce the substance of the theoretical or research question as quickly as possible and follow the main theme throughout the article in a coherent and explicit manner.
- Significance - Related to relevance, significance refers to the value of your manuscript for substantially impacting the enhancement of post-secondary education relevant to the target topic. Significant manuscripts will clearly highlight the value, importance and worth of a relevant topic within a meaningful context.
- Practical Utility - As highlighted previously, the goal of *InSight* is to enhance teaching and learning through the exchange of scholarly ideas. With this purpose in mind, all manuscripts should emphasize the practical value, relevance or applicability of information. Manuscripts should go beyond the simple reporting of information to provide *InSight* into the implications of findings and the application of information into meaningful contexts.
- Originality - The most effective articles are those that inspire other faculty through innovative practices, approaches and techniques or via the thoughtful self-reflection of the purpose, value and function of educational strategies. Thus, manuscripts that highlight original approaches or perspectives will be given priority. Per the nature of published work, all contributions must be the original work of the author or provide explicit credit for citations.
- Scholarship of Teaching - Contributions to the enrichment of teaching and learning should be grounded in relevant theoretical concepts and empirical evidence. As such, articles should be free from flaws in research substance/methodology and theoretical interpretation. All conclusions and recommendations must be substantiated with theoretical or empirical support; personal classroom experiences and critical reflections should be framed within a structure of existing literature.
- Generalizability - The broad goals and varied audience of *InSight* mandate that manuscripts be written for consumption across a range of disciplines that allows generalizability of findings and implications. Thus, while classroom techniques may be developed, tested and reported for a specific discipline or student population, the manuscript should go on to highlight the implications for other populations.
- Clarity - All manuscripts must be written in a clear, professional manner free from grammatical flaws and errors in writing style. The purpose of the manuscript should be clearly defined, relevant and supported by the evidence provided. All manuscripts should be structured in a manner that promotes a clear, cohesive understanding of the information presented. Be sure that your manuscript is free from organizational, stylistic or "sloppiness" barriers that would prevent effective communication of your work.

Review Outcomes

Based upon the feedback and recommendations of the two anonymous reviewers, the Editor will make a final publication decision. Decisions fall into the following categories:

- Reject - Rejected manuscripts will not be published and authors will not have the opportunity to resubmit a revised version of the manuscript to *InSight*. All rejections will be handled in a courteous manner that includes specific reasons for rejection.
- Revise and Resubmit – A manuscript receiving a revise-and-resubmit recommendation shows potential for publication, but needs significant attention and revisions. Those electing to resubmit will be subjected to a novel round of blind review.
- Accept Pending Revisions - A manuscript accepted-pending-revisions meets all the major requirements for publication but may need improvements in substantive, mechanical or methodological issues. Once these issues are adjusted for, the manuscript will receive a “quick review” by the Editor prior to publication. Very rarely is an article accepted with no changes required; as such, most manuscripts are accepted in this category.
- Accept - Accepted manuscripts will be published “as-is” with no further modifications required.

References

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.

Calfee, R. & Valencia, R. (2001). *APA guide to preparing manuscripts for journal publication*. Washington, DC: APA.

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“Problems can become questions to investigate, occasions for learning rather than lamenting. Everything that happens in classroom can be seen as data to be understood rather than causes for blaming or congratulating ourselves or our students...New approaches to teaching are no longer just risks but opportunities for learning...A teacher-researcher is a learner.”

–Glenda Bissex, *What's a Teacher-Researcher?*