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University Professor Feedback that Works

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University Professor Feedback that Works:

What College Students Think

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Abstract

This research study explored student perceptions of feedback from a population of over 7,000 undergraduate students' with respect to handwritten and electronic feedback and the related reasoning of the students' choice in an effort to improve student learning. In addition to awarding grades, some professors also provide comments on students' assignments, which are meant to improve the learning process for the student. Implications of students' perceptions of feedback are discussed within a framework of factors grouped into five overarching themes; *accessibility*, *timeliness*, *legibility*, *quality* and *personal touch*. Ten tables and two figures are included.

University Professor Feedback that Works:

What College Students Think

Feedback is verbal or written information that nurtures deep learning (Denton, Madden, Roberts, & Rowe, 2008; Higgins, Hartley, & Skelton, 2002). It is an important ingredient of effective teaching and learning (Ackerman & Gross, 2010; Ball, 2009; Hounsell, 2003; Matthews, Janicki, He, & Patterson, 2012; Parkin, Hepplestone, Holden, Irwin, & Thorpe, 2012). Commenting on students' assignments with helpful notes is good teaching (Ramsden, 2003). With changes in technologies, professor are altering the way they provide feedback; specifically keyboarding their feedback onto students' work and delivering it electronically. Students' views of their professors' feedback can improve students' learning (Denton et al., 2008; Higgins et al., 2002; Parkin et al., 2012). Understanding student perceptions of feedback will assistant professors' ability to provide useful feedback which if used by students will improve student learning.

Previous Research

Assisting university students in learning and becoming successful is a basic tenant for all college professors. Providing constructive feedback is a vital component in that process for students (National Union of Students, 2008). The quality of that feedback is the aspect mentioned most frequently by students on their course evaluations (Yang & Durrington, 2010). Students desire feedback which improves their chances of learning and becoming successful (Hyland, 2000).

The literature on professor feedback to students provides for five emergent themes. These themes are: the *accessibility* of the feedback, the *timeliness* of the feedback, the *legibility* of the feedback, the *quality* of the feedback and the *personal touch* of that feedback. The initial

study by these authors (Chang, Watson, Bakerson, Williams, McGoron & Spitzer, 2012) verified those themes. The current study utilized those established themes and expanded the depth of knowledge developing individual factors for each theme and then using them with a larger population of undergraduate students.

The first theme, a*ccessibility* of feedback is a basic expectation of college students (Morrissey, Coolican & Wolfgang, 2011). *Accessibility* was seen as the number one mentioned component of professor feedback by students in a study conducted by Di Costa (2010). Chang, et al. (2012) found that students, who preferred handwritten feedback over electronic feedback, did so because they did not have to rely on computers to access their professors' feedback. However, Sadler (2010) indicated that students who preferred electronic feedback over handwritten feedback remarked that the electronic feedback was stored permanently and safely and could be accessed at any time in the future by computer.

Timeliness of feedback is another theme which was identified by Scott (2006) as a strong preference for students. Students want timely feedback from professors (Ferguson, 2011). According to the National Union of Students (2008), students were not happy with the timing of their professor feedback. They wanted it sooner so they could correct their mistakes and learn from those modifications. Feedback becomes useless to students if it is received late (Denton et al., 2008). Quick return of feedback is supported and used by students (Chang et al., 2012). In 2008, 88% of students reported that they favored online feedback over handwritten feedback because they were able to receive it faster (Bridge & Appleyard, 2008). Finally, the automated fashion of electronic learning contributed to the *timeliness* of feedback according to Bai and Smith (2010).

The third theme of *legibility* of feedback is of critical importance (Chang et al., 2012; Yang & Durrington, 2010) as feedback that is typed rather than handwritten is more readable and will directly affect what students glean from the feedback. Ferguson (2011) reported that students held *legibility* of feedback to be an essential element of all feedback. Students reported that legible feedback would improve the feedback that they received from their professors (Denton et al., 2008). Chang et al. also reported that feedback that appears illegible disappoints and frustrates students (2012). The greatest criticism of feedback from students in the Price, Handley, Millar and O'Donovan study (2010) was due to *legibility*, again indicating the importance of legibility.

Quality of feedback is another theme that emerged from the literature. Again, students in the National Union of Students survey (2008) were not satisfied with the *quality* of their professors' feedback. Student would rather wait for the professor's feedback if the *quality* improved with a longer wait time (Chang et al., 2012; Ferguson, 2011). In addition, the single most student-identified item on professor evaluations in the Yang and Durrington (2010) study was the idea of *quality.*

Personal touch of the feedback was the final theme which emerged from the literature (Chang et al., 2012) and only becomes useful when it is perceived as providing a *personal touch* (Krause & Stark, 2010). Students preferring handwritten feedback to electronic feedback identified the *personal touch* theme as being the main reason for their preference (Chang et el., 2012). Assignments were viewed as disengaging for students when a *personal touch* was missing from the feedback (Mann, 2001; Price et al., 2010). Furthermore, students often felt that professors did not care about their learning when the feedback was more negative and did not express a *personal touch* (Di Costa, 2010).

The five themes; *accessibility*, *timeliness*, *legibility*, *quality*, and *personal touch* of feedback permeate the literature on professor feedback. In the 2012 study administered by Chang et al., 68% of the 249 participants from one division of the university preferred electronic feedback over handwritten feedback. In the current study, we examined the preference of electronic compared to handwritten feedback based on individual factors under the five themes, surveying an entire undergraduate population of approximately 7,200 students at Indiana University South Bend.

Methods

The study we conducted during the fall of 2012 explored feedback preferences of a population of approximately 7,200 undergraduate students from the six colleges on the campus of Indiana University South Bend. The response rate was almost 11% as 763 students responded. The survey used was revised and refined based on the Chang et al study conducted in the School of Education at Indiana University South Bend with just over 700 students (2012). The survey instrument included closed-ended questions regarding preferences for both handwritten or electronic feedback and the usefulness of each type of feedback, how much that preference was preferred, and a rank ordering of the five themes in order of importance. In addition the survey included three open-ended questions for clarification on the participant's definition of both electronic and handwritten feedback and other comments.

Demographic Data

Respondents' answers on the initial demographic questions revealed that 72% of the respondents were female while 38% were male. Regarding age, 56% were in the 18-24 age group, 23% in the 25-34 age group, 13% in the 35-44 age group, 6% in the 45-54 age group and 2% reported 55 or older. Considering the class standing, respondents reported that 21% were

freshmen, 22% sophomores, 25% juniors and 32% seniors for a nice spread of respondents. The GPA responses illustrated 62% in the 4.00-3.01 group, 28% in the 3.00-2.01 group, 2% in the 2.00-1.01 group and the remaining 7% either below 1.01 or unknown. Colleges of study on campus were well represented with 9% coming from the Arts, 15% from Business, 17% from Education, 40% from the largest college on campus, the Liberal Arts and Science, 16% coming from the Health Sciences and the remaining 3% from Technology.

Analysis and Findings

Independent *t*-test analyses were run for each set of factors for the five themes under handwritten and electronic feedback preferences. In addition independent *t*-test analyses were run comparing how much preference for handwritten and electronic feedback there was based on overall feedback preference. The majority of undergraduate participants (63%) preferred electronic feedback while 37% preferred handwritten feedback.

Of the 37% of students who chose handwritten as their preferred feedback format not surprisingly there was a statistically significant difference in how they rated handwritten and electronic feedback ($t(745)=-24.60$, $p=0.00$). Students very much preferred handwritten feedback ($M=1.95$, $SD=1.01$) over electronic feedback ($M=4.46$, $SD=1.51$). The same held true for the 68% of students who chose electronic feedback as their preferred feedback format. There was a statistically significant difference in how they rated handwritten and electronic feedback ($t(748)=29.33$, $p=0.00$). They very much preferred electronic feedback ($M=1.86$, $SD=0.92$) over handwritten feedback ($M=4.33$, $SD=0.92$), where 1 on the seven point Likert scale was *very much prefer* and 7 was *not preferred at all*.

Handwritten Feedback Analyses. Independent *t*-tests were run for each set of factors in the five themes; *accessibility, timeliness, legibility, quality* and *personal touch*. The results

indicated that students were extremely consistent in their preference, rating handwritten statistically stronger than electronic for all factors in each theme (see Tables 1 thru 5).

Table 1
*T-tests comparing **accessibility** factors for handwritten feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(a) *Allows me to get information easily*						
Handwritten Preference	274	2.449	1.465	-17.526	728	0.000
E-feedback Preference	456	4.568	1.648			
(b) *Allows me to receive and send information conveniently*						
Handwritten Preference	271	3.989	1.623	-10.838	518	0.000
E-feedback Preference	454	5.286	1.447			
(c) *Allows me to ask questions easily*						
Handwritten Preference	266	2.872	1.680	-12.335	579	0.000
E-feedback Preference	454	4.504	1.770			
(d) *Makes me feel secure to receive feedback from the professor*						
Handwritten Preference	268	1.720	1.206	-14.100	718	0.000
E-feedback Preference	452	3.489	1.832			

Table 2
*T-tests comparing **timeliness** theme for handwritten*

	n	*Mean*	*SD*	*T*	*df*	*p*
(e) feedback allows to receive feedback fast						
Handwritten	266	3.624	1.581	-12.220	570	0.00
E-feedback	451	5.135	1.631			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Table 3
*T-tests comparing **legibility** factors for handwritten feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(f) *enables me to read the feedback*						
Handwritten Preference	266	2.959	1.510	-11.912	716	0.000
E-feedback Preference	452	4.522	1.800			
(g) *enables me to understand what the professor writes*						
Handwritten Preference	267	3.079	1.450	-12.404	717	0.000
E-feedback Preference	452	4.601	1.675			

Table 4

*T-tests comparing **quality** factors for handwritten feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(h) *offers constructive criticism or comments*						
Handwritten Preference	268	1.679	1.126	-9.792	718	0.000
E-feedback Preference	452	1.799	1.659			
(i) *is helpful*						
Handwritten Preference	267	1.588	1.098	-10.137	717	0.000
E-feedback Preference	452	2.741	1.656			
(j) *allows me to understand the content of the professor's comment*						
Handwritten Preference	267	1.970	1.214	-10.962	716	0.000
E-feedback Preference	451	3.268	1.695			
(k) *allows for revisions and improvement*						
Handwritten Preference	265	1.951	1.228	-10.375	712	0.000
E-feedback Preference	449	3.229	1.770			
(l) *provides detailed information I would like to know in text*						
Handwritten Preference	266	2.139	1.382	-9.426	711	0.000
E-feedback Preference	447	3.333	1.770			
(m) *provides detailed information I would like to know at the end of a paper*						
Handwritten Preference	263	1.658	1.036	-10.914	708	0.000
E-feedback Preference	447	2.904	1.672			
(n) *allows me to feel and touch the feedback, which is conducive to my reading*						
Handwritten Preference	265	1.676	1.258	-11.655	707	0.000
E-feedback Preference	444	3.205	1.902			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Table 5

*T-tests comparing **personal** factors for handwritten feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(o) *allows me to establish rapport with my professor*						
Handwritten Preference	265	1.751	1.114	-9.940	710	0.000
E-feedback Preference	447	2.953	1.772			
(p) *encourages me to read the feedback*						
Handwritten Preference	265	1.381	0.871	-10.945	710	0.000
E-feedback Preference	447	2.651	1.765			
(q) *shows that the professor cares about me*						
Handwritten Preference	263	1.464	0.923	-9.164	707	0.000
E-feedback Preference	446	2.498	1.686			
(r) *makes me appreciate my professor's time and attention*						
Handwritten Preference	264	1.337	0.778	-9.007	707	0.000
E-feedback Preference	445	2.256	1.546			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Electronic Feedback Analyses. Independent *t*-tests were run for each set of factors in the five themes; *accessibility*, *timeliness*, *legibility*, *quality* and *personal touch*. The results

indicated that students were extremely consistent in their preference rating electronic feedback statistically stronger than handwritten feedback for all factors in each theme (see Tables 1 thru 5).

Table 6
*T-tests comparing **accessibility** factors for e-feedback feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(a) *Allows me to get information easily*						
Handwritten Preference	270	2.722	1.595	13.858	736	0.000
E-feedback Preference	468	1.511	0.773			
(b) *Allows me to receive and send information conveniently*						
Handwritten Preference	269	2.100	1.307	9.668	733	0.000
E-feedback Preference	466	1.380	0.703			
(c) *Allows me to ask questions easily*						
Handwritten Preference	269	2.877	1.815	9.770	734	0.000
E-feedback Preference	467	1.803	1.164			
(d) *Makes me feel secure to receive feedback from the professor*						
Handwritten Preference	267	3.240	1.664	12.912	729	0.000
E-feedback Preference	464	1.882	1.167			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Table 7
*T-test comparing **timeliness** theme for e-feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(e) feedback allows to receive feedback fast						
Handwritten	267	2.277	1.461	8.927	731	0.00
E-feedback	466	1.504	0.883			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Table 8
*T-tests comparing **legibility** factors for e-feedback feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(f) *enables me to read the feedback*						
Handwritten Preference	267	1.846	1.316	6.707	728	0.000
E-feedback Preference	463	1.324	0.788			
(g) *enables me to understand what the professor writes*						
Handwritten Preference	265	1.996	1.242	5.886	726	0.000
E-feedback Preference	463	1.495	1.021			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Table 9
*T-tests comparing **quality** factors for e-feedback feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(h) *offers constructive criticism or comments*						
Handwritten Preference	263	2.970	1.604	8.656	725	0.000
E-feedback Preference	464	2.070	1.180			
(i) *is helpful*						
Handwritten Preference	265	2.608	1.580	8.053	727	0.000
E-feedback Preference	464	1.819	1.057			
(j) *allows me to understand the content of the content of the professor's comment*						
Handwritten Preference	264	3.136	1.549	10.844	727	0.000
E-feedback Preference	465	2.039	1.159			
(k) *allows for revisions and improvement*						
Handwritten Preference	263	2.875	1.492	8.024	721	0.000
E-feedback Preference	460	2.078	1.148			
(l) *provides detailed information I would like to know in text*						
Handwritten Preference	261	3.111	1.561	8.787	719	0.000
E-feedback Preference	460	2.174	1.259			
(m) *provides detailed information I would like to know at the end of a paper*						
Handwritten Preference	259	3.290	1.567	9.676	714	0.000
E-feedback Preference	457	2.230	1.310			
(n) *allows me to feel and touch the feedback, which is conducive to my reading*						
Handwritten Preference	261	4.667	1.817	8.708	715	0.000
E-feedback Preference	456	3.384	1.943			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Table 10

*T-tests comparing **personal** factors for e-feedback feedback*

	n	*Mean*	*SD*	*t*	*df*	*p*
(o) *allows me to establish rapport with my professor*						
Handwritten Preference	262	4.053	1.780	9.777	718	0.000
E-feedback Preference	458	2.769	1.647			
(p) *encourages me to read the feedback*						
Handwritten Preference	261	3.874	1.914	14.769	717	0.000
E-feedback Preference	458	2.109	1.280			
(q) *shows that the professor cares about me*						
Handwritten Preference	260	3.862	1.804	10.461	714	0.000
E-feedback Preference	456	2.540	1.516			
(r) *makes me appreciate my professor's time and attention*						
Handwritten Preference	261	3.671	1.860	11.240	715	0.000
E-feedback Preference	456	2.318	1.342			

Note. Likert scale 1 = strongly agree to 7 = strongly disagree, the lower the mean the stronger the preference

Rank Order of Handwritten and Electronic Preferences. Students who choose handwritten feedback as their preferred feedback style ranked the themes; *personal*, *quality* and

legibility as the most important (see Figure 1). In contrast students who preferred electronic feedback as their preferred feedback style ranked the themes; *quality*, *timeliness* and *accessibility* as the most important (see Figure 2). Regardless of feedback preference, q*uality* appeared in the top two for both.

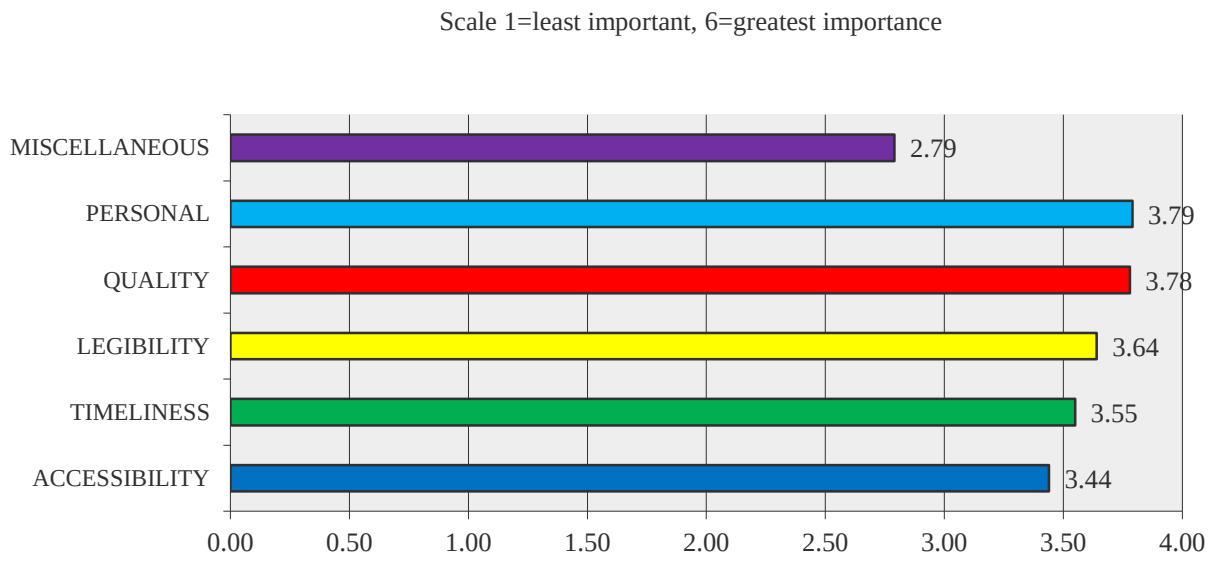

Figure 1. Ranking of themes for those who prefer handwritten feedback

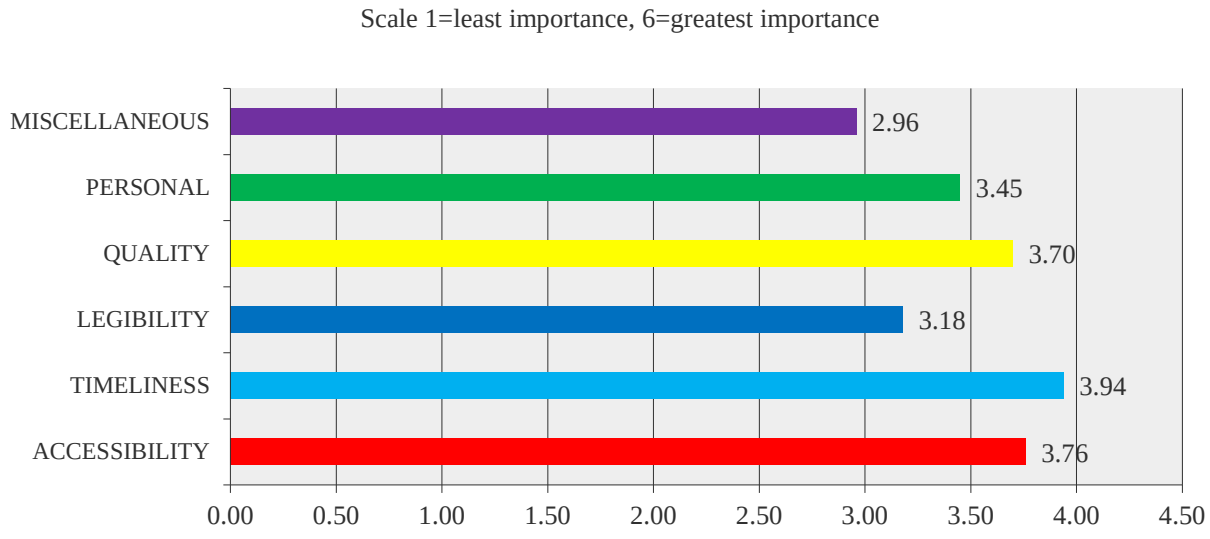

Figure 2. Ranking of themes for those who prefer electronic feedback

Discussion

A comparison of the initial study of 700 undergraduates (Chang et al., 2012) and the current study of 7,200 undergraduates revealed many of the same results. Participants from the six colleges surveyed agreed with the literature (Chang et al., 2012; Denton et al., 2008, Higgins et al., 2002) that feedback, whether written or electronic, could nurture deep learning. Students mentioned that if the feedback includes helpful notes by the professor, that it represents good teaching, similar to what was found in the literature (Ramsden, 2003). Finally, students mirrored the literature when they agreed that their professors' feedback can improve their learning (Denton et al., 2008; Higgins et al., 2002; Parkin et al., 2012).

During the 2012 study by Chang et al., five themes emerged from the participants as the most significant ingredients of good professor feedback. These recurred in the current study; *accessibility* of the feedback, *timeliness* of the feedback, *legibility* of the feedback, *quality* of the feedback, and the *personal touch* of the feedback.

Accessibility of feedback was noted as a basic expectation of college students in regard to their professors' feedback according to Morrissey et al., (2011) and was the most frequently mentioned component by participants in the Di Costa (2010) and Chang et al. (2012) studies. The authors of the current study found *accessibility* was the second highest ranked of the five themes of those participants who preferred electronic feedback while it ranked fifth (lowest) with participants who preferred handwritten feedback. This shows up in the factors under accessibility theme as well, for example the factor; (b) *electronic feedback allows me to receive and send information conveniently*, electronic (M=1.38, SD=0.70) strongly agree and handwritten (M=2.10, SD=1.31) slightly lower but still very close to strongly agree. Where (b) *handwritten feedback allows me to receive and send information conveniently*, electronic

reported disagree (*M*=5.29, *SD*=1.45) and handwritten (*M*=3.99, *SD*=1.62) right in the middle, not agree or disagree. This demonstrates that students that prefer handwritten acknowledge that receiving handwritten feedback is not necessarily convenient as they rated electronic feedback much higher than handwritten feedback for its convenience.

Timeliness of feedback was a second theme emerging from the literature (Chang et al., 2012; Ferguson, 2011; National Union of Students, 2008). Students felt the feedback could be used to correct mistakes but only if it was received in a timely fashion (Denton et al., 2008). A vast majority of students responding to the Bridge and Appleyard study (2008) favored online feedback because they were able to receive that feedback faster than handwritten feedback. With the current study, authors found that the respondents ranked *timeliness* of the feedback as the highest ranked component of professor feedback for those who preferred electronic feedback while those preferring handwritten feedback ranked *timeliness* as only the fourth highest of the five themes. This could perhaps be because students who prefer handwritten are used to receiving handwritten feedback and possibly have not benefited from receiving electronic feedback quickly. It would be interesting to see if the same students felt the same way after receiving electronic feedback. Looking at the factor under timeliness, (e) *electronic feedback allows me to receive feedback fast*, electronic rated this as strongly agree (*M*=1.50, *SD*=0.88). Handwritten rated this as strongly agree (*M*=2.28, *SD*=1.46) as well. For (e) handwritten feedback allows me to receive feedback fast, electronic rated it as disagree (*M*=5.14, *SD*=1.63) and handwritten rated it just over the middle on the agree side (*M*=3.62, *SD*=1.58). Again handwritten preference people rated electronic feedback as faster than handwritten feedback.

Legibility of professor feedback was a third theme that emerged from the literature as another critical component of feedback (Chang et al., 2012; Yang & Durrington, 2010). It was

reported as an essential element in the Ferguson (2011) study. Students in the Denton et al. (2008) study reported that legible feedback would improve their professors' feedback. *Legibility* of feedback was the most criticized element in the Price et al. (2010) study as well. Comments from students on open-ended questions mentioned that they were able to most often interpret what the professor was writing and make sense of those handwritten notes (Chang et al., 2012). Findings of the current study deviated slightly from that literature. The authors found that those participants preferring electronic feedback ranked *legibility* as the lowest of the five themes and surprisingly for those participants preferring handwritten feedback ranked *legibility* as only the third most important theme. It is assumed that student who preferred electronic feedback ranked legibility the lowest as it is a nonissue when receiving feedback. On the other hand it would have been expected that students who prefer handwritten feedback would have ranked legibility higher than third. Students who preferred handwritten did however rate the factor (f) *electronic feedback enables me to read the feedback* as strongly agree (M=1.85, SD=1.32), those who prefer electronic feedback also rated this as strongly agree (M=1.32, SD=0.79). For (f) *handwritten feedback enables me to read the feedback,* electronic preference rated this as disagree (M=4.52, SD=1.80) and handwritten preference students rated this as agree (M=2.96, SD=1.51). Again regardless of feedback preference all students rated electronic feedback as more legible.

Quality of the professor feedback was another theme that emerged from the literature. On professor evaluations, students noted *quality* of feedback as the most mentioned item (Yang & Durrington, 2010). Students in the National Union of Students survey (2008) were not satisfied with the *quality* of their professors' feedback and comments from the Chang et al, (2012) study, revealed that students would rather wait longer for feedback if the quality of that

feedback improved. While in the current study *quality* of feedback ranked as only the third highest theme of the five themes for those students preferring electronic feedback, *quality* of feedback ranked as the second highest theme for those participants preferring handwritten feedback. This might explain why legibility of feedback was ranked lower for students who preferred handwritten feedback. It seems that *quality* and *legibility* are being interchanged a bit by students.

Finally, the last of the five themes of professor feedback, *personal touch* was mentioned in several of the studies located in the literature. Participants felt their professors did not care about their learning when the professors' feedback lacked that *personal touch* (Di Costa, 2010). Assignments were found to be disengaging when students viewed their professors' feedback when the *personal touch* was missing (Mann, 2001; Price et al., 2010). Krause and Stark (2010) reported that students perceived their professor feedback as useful only when it was perceived as having a *personal touch.* Surprisingly, *personal touch* was ranked low (fourth of the five themes) by participants in the current study who preferred electronic feedback while *personal touch* ranked as the highest of the five themes by those participants in the current study who preferred handwritten feedback. For all factors under the personal touch theme students who preferred electronic feedback rated handwritten and electronic feedback about the same for providing a personal touch. This was not the case for students who preferred handwritten feedback. Under all four factors students who preferred handwritten feedback rated handwritten feedback as providing a stronger personal touch than electronic feedback. This is an extremely important issue to note. Professors need to be sure when using electronic feedback that they are not just using standard notations for everyone. Professors have to take an extra step and provide personal feedback that pertains specifically to each student. If students feel that their professor

cares, through the personal feedback that they receive, students will work harder, try to improve and this will affect their success as a college student. It truly is the small things that impact students the most.

Educational Implications

Results of the study indicate that students are concerned about and respond to professor feedback which is appropriate for their learning style. Learning is enhanced when feedback is perceived as constructive and helpful. Professors should consider their feedback to students in light of these findings, considering the five themes, *accessibility, timeliness, legibility, quality* and *personal touch* of their feedback. If the professor utilizes these important student themes in preparing feedback and actually engages with students, offering individualized challenges (Rushoff, 2013), student learning will improve.

Professors who rely on electronic feedback as their normal mode for providing feedback to their students might consider the use of more *personal touch* comments on feedback which would lead to feelings of increased *quality* of that feedback by students. In addition, professors who rely on handwritten feedback as their normal mode of providing feedback to their students might consider improving the *accessibility* of the feedback (available in office) and *timeliness* of the feedback (reviewing, commenting, grading right after class), and the *legibility* of the feedback (taking more time to improve the readability of their handwritten comments).

Some professors may need additional professional development and assistance with developing appropriate feedback techniques, whether it is they use handwritten or electronic feedback. The overarching response from students on the survey is summarized nicely by the following student comment; "… the times that I have received feedback that included annotations on electronic feedback, I found it helpful". Professors who want their students to

make improvements based on feedback they provide need to make a conscious effort to be proactive in their development of that feedback.

Limitations and Future Research

The authors experienced several limitations during the study. Comments from students on the open-ended questions revealed that several believed the survey to be too time consuming and confusing. Since the study was conducted at the beginning of the second semester, some respondents might not have had much experience with professor feedback to comfortably answer some of the questions. Other comments indicated that since the student took the survey on Survey Monkey, they were in a computer lab and the noise level was distracting causing them to lose concentration for some of the deeper thought-provoking questions.

In another area of the survey, even though the authors provided a clear definition of handwritten and electronic feedback, several students expressed concern over not having a specific working definition of the two forms of feedback. Future researchers would do well to provide precise definitions in more than one place on the survey, perhaps with examples of those definitions to gain more accurate information from the respondents.

More detailed research needs to be conducted by researchers interested in making professor feedback a positive influence on student learning and success. Researchers may wish to study specific areas such as *accessibility, timeliness, legibility, quality* and *personal touch* in either handwritten or electronic feedback locating areas that students precisely identify as positively impacting their learning. Other research might center on the medium of that feedback. Particular studies might focus on email, Sakai, Blackboard, Tablet Pc, iAnnotate PDF, iPad, Word or other emerging tools used to provide electronic feedback to students. Finally, a more in depth exploration of student interpretation of feedback, particularly in online courses needs to be

conducted. In online formats professors are at a disadvantage and are not able to read body language or immediately see misinterpretations, this is where electronic audio feedback might be important. Using an audio tool would help misinterpretations from occurring. Currently, a study is being conducted by the researchers in a small Georgia two year college of mostly online students. With the increase in online courses and programs being offered both nationally and internationally, further research with online students is warranted.

Conclusion

Based on the current study of over 7,000 undergraduate students covering six colleges within a Midwestern regional university and prior studies conducted on smaller, more specific target audiences, findings revealed that overall students preferred electronic over handwritten feedback from their professors. Regardless of student preference, the major area of emphasis on feedback fell in the five themes: *accessibility, timeliness, legibility, quality* and *personal touch*. Students who preferred handwritten feedback did so because of the *quality* and *personal touch* of the feedback. Students who preferred electronic feedback did so because of the *accessibility, timeliness* and *legibility* of the feedback.

All students felt feedback provided by professors could be improved so that it assisted in student learning and being more successful academically. Professors who wish to provide feedback that does indeed improve students' learning need to do more than provide generic comments, letter grades or checkmarks indicating a summative decision on their students' work. Instead, they need to provide useable, specific, understandable feedback, whether electronic or handwritten, which shows that the professor has considered the variables of *accessibility, timeliness, legibility, quality* and *personal touch.* Only then will the feedback provided be read and applied by students who desire to improve their learning.

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