

Revisiting the Online versus Face to Face teaching evaluations

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ABSTRACT

Although most literature in relation to student teaching evaluations argue that when the administrative format is switched from paper based to online, the impact on professors' teaching scores is minimal, but faculty may still resist change from one format to another. This article describes a pilot study at a medium sized, western university whose primary mission is teaching, and which is transitioning the student teaching evaluations from a paper based to an online format. To gain faculty support and proceed with the format change, a comparative study was carried out in the business department, one of the larger departments in the university. Statistical differences between 24 (paper) and 22 (online) teaching evaluations from 21 professors were compared using inferential statistics (t-test). While the main finding (no difference between the two administrative formats) follows the literature, some additional evidence argues that students teaching evaluations tend to be lower on business courses that develop quantitative skills. In spite of limitations related to sample size and teaching score used for the comparative analysis, the findings offer positive support to the university administration in switching formats. However, when analyzing these differences individually, substantial implications for faculty and their performance evaluations may arise.

Keywords: *Student Teaching Evaluations; Online and Paper Format; Organizational Change; Higher Education*

INTRODUCTION

Conventional approaches in the management and organizational literature are now, more than ever, considered in the context of higher education institutions. Among these approaches, is Organizational Change. This is defined as the processes faced by organizations, which must modify traditional ways or forms of doing things (products, process) for some practices to improve stakeholders' requirements. In the context of higher education, organizational change is a recurring topic.

The use of technology and incorporating this into Higher Education institutions is considered an imperative element to adapt to current trends (Kemelgor, Johnson and Srinivasan, 2000; Marshall, 2010). Nevertheless, it is documented that faculty sometimes may exercise some form of change resistance to technological changes (Finley and Hartman, 2004; Tagg, 2012). For instance, using technology to improve long established processes in higher education, such as using online frameworks to gather student feedback, which, in the past, used to be in an administrative paper format. This paper focuses attention on surveys related to student teaching evaluations (STE). This type of survey has shown that when they are administrated using technology, the overall results tend to be similar, but in a few specific instances, it is not the case. Therefore, it is expected that the faculty will show a bit of resistance due to contradicting results.

This article describes the experience of a business department at a university (primarily undergraduate institution) located in the western part of the United States of America. Under the auspices of continuous improvement, the department decided to change the STE administrative format from paper to online. Regardless of the extensive literature that supports the idea that

switching between formats in most cases should not affect the teachers' scores, many faculty members were reluctant to pursue the change. To gain support among these professors a "pilot study" comparing both methods was executed. The main research question is: *Does the STE administrative method affect the scores received by faculty?*

The importance of this research is located in the fact that although it presents a previously researched topic, the context (a teaching institution, in which STE play an extensive role in the faculty performance evaluation) is different. It also uses an approach not commonly applied. The data and its comparative analysis are reviewed considering the same pair of courses taught by the same professor, during the same semester.

This article is structured in the following format: we present a background section that addresses some theoretical elements related to organizational change and resistance, along with some implications in the context of STE. Next, we provide more details concerning the pilot study. Following that, we describe the method, data used, and results. Finally, a discussion and conclusion section which develops the interpretation of the results, implication, contributions, limitations, and final remarks is presented.

BACKGROUND

Some considerations on overcoming change resistance

Change has become essential for organizations to succeed and to have high performance. Numerous articles and studies attempt to explain the shift effects in management, no matter the outcome. Nevertheless, among many of these studies, a common theme is resistance towards change (Erwin and Garman, 2010; Laumer and Eckhardt, 2010; Bateh, Castaneda and Farah, 2013).

Seminal research, like Katz and Kahn (1966), indicates organizational and individual sources of resistance to change. Yılmaz and Kılıço lu (2013, p. 20) suggest that in educational contexts, among these individual sources are:

“interference with need fulfilment, selective perception, habit, inconvenience or loss of freedom, economic implications, security in the past, fear of the unknown, threats to power or influence, knowledge and skill obsolescence, organizational structure and limited resources.”

Some of these change resistance sources are related to each other. The need for fulfillment refers to the economic implications that a different STE might reveal. For instance, if the change in STE diminishes the current job perception, but more critical, may jeopardizes future income, the faculty may exercise a form of resistance. Not knowing if the teaching scores may be lower using a new administrative form, may anchor some faculty to believe that things in the past were okay, so why change it? Online STE numbers tend to yield lower numbers in response rate, and, unlike online evaluations, require the students to fill out the survey at their leisure (Fike, Doyle and Connelly, 2010).

Meanwhile, online STEs may not even allow students to complete these evaluations due to technical difficulties. Further, at the end of the semester, students might perceive the STE as an inconvenience. In many cases, the semester end tends to become associated with final exams, group projects, and other activities that require more time and dedication. Nevertheless, Fike, Doyle, and Connelly (2010) argued that teachers' scores were similar between both administrative formats.

This previous issue could also bring up the question of dealing with uncertainty about which students are responding. Somehow, a control effect on the students while completing the paper evaluations is lost in the online environment. Professors may also be resistant to a switch due to the worry of the effect on their assessments. In addition to this sense of security from past practices, a fear of the unknown is evident. For instance, faculty can argue the safety, privacy, or authenticity of the new method. It is also essential to determine the reliability of the new method (Mulig and Rhame, 2012). Many of the previously described situations support the idea that this resistance to change tends to be driven by more than one individual factor.

Many organizations blindsides employees by forcing them into change rather than easing them into the transition. Regardless of the potential change resistance exercised by organizational members and their reasons, the reality is that when some changes are required, the organization will execute the change. Therefore, finding ways to make this change seamless is one of the keys to being successful.

Change transition is an excellent opportunity for an organization. It gives them a chance to investigate the future, and improve what needs to be developed (Gilmore, 1988). Al-haddad and Kotnour (2015), analyzed the change literature where they identify change types, enablers, methods, and outcomes. The types of change are based on the scale (small or large) and duration (short or long). The enablers are grounded in the knowledge and skills, resources, and commitment (all these related to elements the organization needs to achieve the change). The change methods are divided into two groups, Systematic and Management. The first group – Systematic, “are methods involve a certain set of processes and tools to help the management team make a series of start, stop and continue decisions” (Zook, 2007 cited in Al-haddad & Kotnour, 2015, p. 244). The second group is management methods, “tackle change on a large scale and include a range of intervention strategies” (Worren, Ruddle, & Moore, 1999 cited in Al-haddad & Kotnour, 2015, p. 248). Finally, the outcomes are divided into two groups, those related to the project objectives (attaining what was intended) and customer satisfaction (effect on clients due to the change). A critical element mentioned by Al-haddad and Kotnour (2015) is that alignment between change type and methods enables attainment of the outcomes mentioned.

Fernandez and Rainey (2006) argued that in the context of public administration, there are eight factors that may help in succeeding in organizational change. These factors are ensuring the need, providing a plan, building internal support for change, and overcoming resistance. Further, one must ensure top-management support and commitment, build external support, provide resources, institutionalize change, and pursue comprehensive change. Considering these previous factors, we can argue that there are ways to exercise organizational changes which satisfy the stakeholders' interests and agendas and achieve the planned outcomes.

Organizational change in the context of students' evaluation of teaching

In the 1980s, an honest conversation about higher education by multiple stakeholders (Organisation for Economic Co-operation and Development., 1987) emerged and found its way to the mainstream media. Elements like higher education sustainability (Wals, 2014), identity (Winter, 2009; Baldo, Hull and Aristeguieta-Trillos, 2018), role in society (Kezar, 2004), and quality (Ewell, 2010; Mark, 2013) among many others issues, have become constant topics in academic research since this conversation took place.

Measuring or assessing quality of higher education is not an easy task and may vary depending on multiple factors (Bennett, 2001). In the case of business domains, a common approach to define quality is to focus on customer expectations and experiences. This seems to be the approach

indicated by Mark (2013). Mark argued that the use of the information provided by students is seen as the clients in a traditional business model. Although the author argues that this approach may be questionable, this could be feasible.

According to Roche and Marsh (1997) as well as Hénard and Roseveare (2012) students' evaluations of teaching are a data source for evaluation of teaching quality. Traditionally, these evaluations are completed by the students in which they assess a teacher's competency in delivering the course content along with other aspects linked to the course. The information provided by the evaluations may reflect students' perceptions and consequently may lead to the improvement and quality of the teaching. In fact, Umar et al. (2016) argued that students in general like the STE (these authors call these students evaluations of teaching or SET), preferring them to be administrated towards the end of the semester, and they believe these evaluations improve teaching competencies.

Nevertheless, contrasting previous research on STE, we can find interesting disjunctive ideas. Although these evaluations may not lead to the improvement on the learning side (Clayson, 2008), clearly the rating generated by these may be related to some background characteristics such as: prior subject interest, expected grade, reason for taking the course, workload, class size, level of the course, instructor rank and gender, purpose of rating, administrative conditions and student personality (Marsh, 2007, p. 348). Therefore, potential bias by the students during the application of STE is probable (Davies *et al.*, 2007).

Anderson (2015) explained that there are benefits (time, cost) to the institution and faculty that come from switching from paper to an online administrative form. Klieger, Centra, Young, Holtzman, and Kotloff (2014) as well as Morrison (2013) argued that to switch administrative methods for STE may not yield the same results. However, different results may also be a product of course characteristics. Sliusarenko (2013) argued that teachers who teach courses like mathematics, informatics, electronics, or chemistry receive lower scores on the STE. In contrast, Iskandar, Karmelia, and Sinaga (2016) explained that potential difference can be accredited to disturbance. Examples of disturbance are associated to elements that may reduce or increase reliability on respondents, for example knowing the researchers or knowing beforehand the survey topics. Another study (Capa-Aydin, 2016), supported the idea that the response rate is lower online, and the mean ratings for teachers are lower online. Moreover, Hatfield and Coyle (2013) claimed that there is no correlation between the grade obtained by students and their response rate, but gender and ethnicity along with age may have an effect on this rate.

The response rate on the STE may improve either by faculty "inducements" (for example, extra credit) (Boysen, 2016), or when instructors show students the importance of STEs and how they care about their evaluations (Chapman and Joines, 2017; Thielsch, Brinkmüller and Forthmann, 2018). Another manner by which response rate can be increased is to allow the students to respond in the classroom, similar to the traditional paper form (Treischl and Wolbring, 2017). Also, if the students identify with their instructor, the response rate tends to be higher (Thielsch, Brinkmüller and Forthmann, 2018). Likewise, a mandatory policy to complete STEs has a positive effect in online responses but negative on the paper form (Mitchell and Morales, 2018).

Due to these contradicting and overlapping findings, some faculty may demonstrate negative attitudes towards changes on any of the background conditions that historically have been understood. Therefore, change resistance from faculty should be expected.

The use of STEs is not an approach used in just a few countries (Husbands and Fosh, 1993; Pratt, Kelly and Wong, 1999; Cassiani *et al.*, 2017). For instance, research indicates that the use of new

technologies for teaching and learning vary considerably between developed and developing countries (Sife, Lwoga and Sanga, 2007), which can have implications for STEs. Perhaps some institutions are using paper surveys as an administrative condition for STEs. In March 2019, during the X4 Management summit, one of the presentations (Moench, 2019) explained an institutional transition from paper to online format for teaching evaluation at a United States based university. This supports the idea that even in many developed countries; some institutions still use paper as the administrative method. It also backs the perception that many institutions in higher education are in the process of transitioning STEs to online or electronic formats. This change will help to provide quicker information to administrators and reduce administrative cost.

Nevertheless, as indicated by Guder (2010), there is extensive research in relation to the variance in response rate when using online STEs. When linking these previous arguments, it will be rational to foresee how some faculty that traditionally have used a paper method regardless of their geographical location may consider some negative aspects of switching to an electronic administrative method for their evaluation process. Consequently, some of these faculty may offer resistance towards shifting administrative forms. It can be claimed that this is a global issue in higher education, and therefore more research on this matter provides better insight on this issue.

THE CURRENT STUDY

The study was carried out at a mid-sized university located in the western United States of America, which provides higher education to many rural communities. This institution initiated the Business program's accreditation process with the Association to Advance Collegiate Schools of Business (AACSB) in 2016. As indicated on the standards of the accreditation body, the department must demonstrate continued improvement processes related to the business programs. Under such premises, the head of the business department along with the accreditation committee suggested that the Students Teaching Evaluations process should be quicker. This aligns with the intention to rapidly incorporate valid student feedback and suggestions on the previous semester's courses.

Historically, these evaluations were administrated in a paper format; thus, the department should move to an online format to achieve this process improvement. In addition, this may help improve the faculty teaching performance. This action will ultimately translate into improvement of quality in relation to the teaching effectiveness of the faculty.

The head of the department and other faculty were aware of evidence and reports, which show the effects of switching to online evaluations. Thus, switching may help to improve the quality due to the quicker data processing, allowing the previous semester's results to be considered in planning the next semester's classes. Nonetheless, many other faculty members have concerns regarding the effect the change may have on their performance evaluations (in particular, the teaching component). Under these conditions, the department head proposed a pilot study. In this pilot study, the teacher's evaluation rate and variances between the two administrative condition formats (online vs. paper) will be assessed.

METHOD

Student evaluations of teaching are conducted each semester during weeks fourteen and fifteen (of a sixteen-week semester). The questionnaire used by the institution contains six items related to a students' characteristics (Gender, classification, type of course, degree, department, and expected grade).

The same survey includes twelve items using Likert scale responses (5-points) which inquire about teacher and course issues. Some examples include assignment and grading clarity, effectiveness of teaching methods, syllabus and learning outcomes alignment, instructional preparation, office hours, and promotion of class decorum during lectures. The data collected for this study relates to these issues and the reporting of the Likert responses as the "Median of Medians." Ultimately, this term median of medians refers to the scores received by the professors and are part of the faculty performance evaluations.

After the students complete these evaluations, the STEs are analyzed by the Institutional Research Unit, and ultimately this office reports the results to faculty and the department head. The Department Head's idea was that the department will implement an online format by spring 2019, thus the pilot test was planned for fall 2018. For the fall semester, the Department of Business, on average, offers 150 different courses in areas including, but not limited to Accounting, Business, Computer and Information Systems, Human-Resource Management, Management, Economics, Finance, Hospitality, and Marketing.

DATA

Courses to analyze were selected such that one professor is teaching two (or more) sections of the same course. Initially, 24 sets of sections were selected. However, data quality in one section, along with the express request of some professors resulted in 21 sections for analysis (21 different professors) with 46 courses as can see in Table 1. Online teaching evaluations were given to at least one section while the other(s) had paper evaluations. 18 sets of courses were perfect pairs (two sections, one online and one paper administration method), two sets were trios (three sections had one online and two paper administration methods) and one set was a quartet (four sections, two online and two paper administration method). The number of students who responded for the STEs selected was 827.

Table 1: Group Statistics scores per administrative format

	Administrative Conditions	N	Mean	Std. Deviation	Std. Error Mean
Median of Medians	Paper	24	4.5938	.55566	.11342
	Online	22	4.5227	.51703	.11023

RESULTS

An independent samples t-test was performed to compare the median of medians for courses that the STEs were administered online versus in paper. The paper administrative condition ($N=24$) was associated to an average Median of Medians score $M= 4.59$ ($SD= .55$). By comparison, the online administrative condition ($N=22$) was associated with a slightly similar average of the Median of Medians score $M=4.52$ ($SD=.51$). To test the hypothesis that paper and online administrative condition were associated with statistical significance different Median of Medians scores, an independent sample t-test was performed.

As can be seen in Table 2 below, the outcome variable was found to be normally distributed and equal variances are assumed based upon results of Levene's test ($F(44) = .345, p=.560$). There is no significant difference in the Median of Medians scores for paper $t(44) = .448, p = .657$, two-

tailed). The magnitude of the difference in the means (mean difference = .07, 95% CI; -.24, .39) and the effect size was very small (Cohen $d = .132$).

Table 2: Independent Samples Test scores and administrative format

		Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Median of Medians	Equal variances assumed	.345	.560	.448	44	.657	.07102	.15867	-.24876	.39080
	Equal variances not assumed			.449	43.987	.656	.07102	.15816	-.24774	.38978

This finding provides evidence that the overall scores received by faculty are similar between the online and paper administrative method. Although the result mentioned answers our main research question, other findings can be addressed. For example, considering that scores for 21 professors were analyzed, we contrasted these individually. We found that individually more than 66% of the professors received better scores on the paper administrative format.

In the case of the response rate shown in Table 3, our findings indicate that the STEs administrated in a paper format $M = 70.65\%$ is higher than those online $M = 58.80\%$. However, as indicated in Table 4, there is no significant difference of means in the response rate for paper versus online ($t(44) = 1.970, p = .055$, two-tailed).

Table 3: Group Statistics response rate per administrative condition

	Administrative Conditions	N	Mean	Std. Deviation	Std. Error Mean
Response Rate	Paper	24	70.6500%	13.28098%	2.71097%
	Online	22	58.8073%	26.00197%	5.54364%

Table 4: Independent Samples Test response rate and administrative format

		Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Response Rate	Equal variances assumed	18.058	.000	1.970	44	.055	11.84273 %	6.01210%	-0.27387 %	23.95933 %
	Equal variances not assumed			1.919	30.645	.064	11.84273 %	6.17100%	-0.74903 %	24.43449 %

In addition to our main question and expressing our finding in relation to the most commented variable (administrative format) for STE, we reviewed other variables as well. Using similar statistical analysis, we checked variables like professor gender, years in the institution, and rank, among many others. One of those deserves attention. This was related to how professors categorize their courses - quantitative or qualitative. The first related to courses which professors indicate students must use quantitative skills, while the second group was more associated with the theoretical courses. As shown in Table 5, the scores received for professors on qualitative courses $M= 4.9286$ is higher than those for quantitative $M=4.3984$. Table 6 shows significance $t(43.20) = 4.436, p = .000$, two-tailed), with a very large effect size (Cohen $d= 1.110$).

Table 5: Group Statistics scores per course competencies

	Course Competencies	N	Mean	Std. Deviation	Std. Error Mean
Median of Medians	Qualitative	14	4.9286	.26726	.07143
	Quantitative	32	4.3984	.54202	.09582

Table 6: Independent Samples Test scores and course competencies

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Median of Medians	Equal variances assumed	33.447	.000	3.464	44	.001	.53013	.15304	.22171	.83856
	Equal variances not assumed			4.436	43.208	.000	.53013	.11951	.28915	.77112

DISCUSSION

Most of the literature on the Students Teaching Evaluations indicated that the means did not vary when comparing the paper and online administrative method. This pilot study helped to gain support to convert from paper to online teaching evaluations, overcoming some of the resistance to change in the department. However, something still calls our attention. When we reviewed case by case (each professor individually) the scores variances between online and paper evaluations we identified some discrepancies. For instance, from the 21 professors considered in this analysis, 14 of them score better in the paper evaluations with an average positive difference of .2925 (on a scale from 0 to 5) with $SD=.2560$. When we put this in the context of performance evaluation, the individual effect that this may have among faculty is high. As mentioned, the institution where the study was conducted is considered a primarily undergraduate institution, or a teaching institution. Although in the domain of business (due to the accreditation process) research is expected, 50-65% of the performance evaluation for the faculty depends on teaching. The minimum expectation of the faculty at this institution is that professors receive a 3.5 on a 5-point scale in their scores. Thus, a drop of 0.50 may have negative implications on their annual performance evaluations.

This preceding situation brings into the discussion something that perhaps has received poor notoriety among researchers of the STE topic. While comparing teaching evaluations between institutions may be misleading, we can argue that in comprehensive universities (Primary Undergraduate Institutions or PUI-teaching institutions) faculty may have more at stake than in research institutions, on which more Teaching Assistants are put in lecturing roles, and the course load can be significantly less.

Based on this, we can see implications for administrators in higher education institutions. It looks like there is a weak relation between the institutional mission statement and STE methods. In other words, administrative leaders should review their policies concerning their teaching evaluations and how these are weighted on faculty performance reviews. Perhaps continuous monitoring of the STE trends, methods, and their effect on other organizational outcomes are suggested. It is almost impossible to halt the use of electronic administrative methods, but more research and wise decision making is expected from higher education leaders.

As was mentioned, in the results, this paper addresses again some issues mentioned by Morrison (2013) and Sliusarenko (2013). They take into consideration the potential effect that course domain in departments may have on the STEs. In this study, there is a clear difference in the scores received by professors who teach courses that are based on quantitative skills. With this result, administrators might need to take into account the type of class taught during the evaluation process. Furthermore, when part of the performance evaluations of these faculty members includes a comparison with other peers, a calibration might be called for. We pose this as a potential answer to some academic urban legends that continuously argue (in an anecdotal form) that those teaching courses with “numbers” (quantitative skills) their evaluations get diminished.

One area not controlled for during this study relates to the variants in the administrative conditions. For instance, although some STEs were being taken using the online system, in some cases faculty use class time to ask students to complete these evaluations (following the same security and privacy protocols used for paper format evaluations). Thus, this may have some effect in our findings. This previous idea is associated in the above-mentioned subheading (overcoming change resistance) for the control effect. If the professor is aware of students’ positive perception of their teaching skills, it may be in their best interest to ask students to complete this evaluation during the class (using either campus or personal electronic devices). This approach may lead to a higher response rate and a call to action from those students that positively value the instructor. In simplistic terms, professors that have the possibility to interact face to face with students can execute pressure. In addition, for this purpose we did not consider if faculty use some of the best practices mentioned in the literature to get more responses (Morrison, 2013; Boysen, 2016; Chapman and Joines, 2017; Treischl and Wolbring, 2017; Thielsch, Brinkmüller and Forthmann, 2018).

Although the initial intention of this paper was to present and describe some “pilot” results for adapting STEs administrative mode to online, some of the findings are expected to maintain the idea that in relation to teaching evaluations and their administrative form there is not full consensus. Therefore, we think that a large-scale national study can help to solve potential variances between institutions.

CONCLUSION

This research may help institutions in the US and abroad that are currently changing their STE processes. It can be argued that some of these changes will require more executive discussions, and the possibility of a pilot to get support from the parties involved may be impossible. This paper illustrates that administrators should review the way they implement organizational change. Implications of change that are only based on case generalization but do not consider individual consequences may carry on in future issues.

As was suspected from the beginning (based on the existing literature) there was evidence supporting the idea that switching STEs from a paper to an online format would not have an impact on teaching scores. However, the largest contribution is to pinpoint the differences on scores that may happen between domains in the same area.

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