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Faculty members' responses to implementing re-envisioned EdD programs

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Limitations of the education doctorate (EdD) and the emergence of professional practice doctorates have influenced those offering the EdD to re-envision, re-define, and reclaim the EdD as the degree of choice for the next generation of educational leaders. Colleges of education faculty members have used the Carnegie Project on the Education Doctorate's (CPED) working principles to redesign EdD programs to make them more relevant to educational leaders. Faculty members' perceptions of program revisions, participation in CPED, implementation of redesign efforts, factors influencing revision, and so on were assessed using closed- and open-ended items in an online survey. Results indicated variables from Rogers' theory of diffusion and adoption of an innovation and CPED working principles were useful in understanding program redesign efforts, changes, implementation efforts, and outcomes. Moreover, quantitative and qualitative data were complementary. This work has implications for EdD program design, program leaders, faculty members, and students participating in such programs.

Keywords: Doctoral education; doctoral practices; educational innovation; faculty; change; EdD; EdD programs; CPED

In this paper, we report data from a study in which we investigated faculty members' perceptions about their newly developed or revised education doctorate (EdD) programs. In particular, we examined participants' perceptions of the programs and how these programs were influenced by their institutions' participation in the Carnegie Project on the Education Doctorate (CPED) as well as Rogers' (2003) framework on diffusion and adoption of an innovation. This work has implications for EdD program design, program leaders, faculty members, and especially for students participating in such programs.

Related literature

Although the PhD generally has been the doctoral degree of choice in the UK, Australia, and the USA, the limitations of that degree for preparing professionals for the

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workplace setting have been amply described (Levine 2005; Park 2005; Scott et al. 2004; Shulman et al. 2006; Winter, Griffiths, and Green 2000). As a result, professional practice doctorate (PPD) degrees have emerged in great numbers and prospered in those and other nations. Increasingly, alternative doctoral degrees like the Doctor of Business Administration, Doctor of Information Technology, Doctor of Project Management, and Doctor of Education, as well as others have been viewed as viable alternatives for those working in business, industry, or those serving as educational practitioners or leaders (Carboni and Proper 2009; Manathunga et al. 2012; Park 2005; Perry 2012; Perry and Imig 2008; Shulman et al. 2006; Walker 2008; Winter, Griffiths, and Green 2000).

These alternative doctoral programs have arisen primarily for two reasons. First, doctoral programs have taken on new roles of providing professionally capable individuals with training in the skills, methodologies, and reflective talents that are expected to be applied by leaders in workplace and career settings (Park 2005; Walker 2008; Winter, Griffiths, and Green 2000). Thus, there is a new **emphasis on skill development rather than merely focusing on creating new knowledge**, which has been viewed as the primary objective of doctoral preparation in the past (Park 2005). Second, Manathunga et al. (2012) noted that doctoral programs must prepare ‘employment ready’ and ‘industry ready’ graduates – those who are capable of dealing with problems/issues in their workplace settings. To meet the need for preparing research ready professionals, Winter, Griffiths, and Green (2000) suggested that through these variant doctoral programs, ‘Higher education is being brought **into closer cooperation** with a wide range of other workplaces’ (26).

This closer interaction of doctoral programs with their associated communities is reflected in the fact that PPD programs are **situated at the intersection of the profession, the workplace, and the university** (Lee, Green, and Brennan 2000; Park 2005). Further, these programs feature **applied skills and knowledge**, center on the connections between theory and practice, promote reflective and critical thinking about practice, accentuate research in the workplace, and respect and utilize the viewpoints of practitioners (Bourner, Bowden, and Laing 2001; Lester 2004; Maxwell 2003; Park 2005; Rolfe and Davies 2009; Winter, Griffiths, and Green 2000).

In the USA, the Educational Doctorate (EdD), the most common type of PPD, has come under intense scrutiny and crushing criticism (Levine 2005) and various proposals have emerged for reform (CPED 2009; Grogan and Andrews 2002; Lester 2004; Perry 2012; Perry and Imig 2008; Shulman et al. 2006; Wergin 2011).

In a blistering critique of the preparation of school leaders in educational administration programs including doctoral programs, Levine (2005) suggested there were a number of problems that were at the root of poor preparation including: irrelevant curriculum, inadequate clinical instruction, inappropriate degrees, poor research, and so on. With respect to curriculum, Levine suggested coursework was too general in nature and not sufficiently focused on information relevant to the ‘real life circumstances’ of actual or aspiring school leaders. Further, Levine was highly critical of inadequate clinical preparation when he affirmed that graduates among other things indicated ‘there was too much theory and not enough practice.’

With respect to the current study, the most compelling argument Levine raised was the inappropriateness of the degree earned. Levine noted the continued confusion between the PhD and EdD degrees and the fact that many school leaders were participating in PhD programs, which typically were focused on preparing researchers, when they would better be served in EdD programs centered on preparing school leaders.

Thus, many school leaders were being asked to engage in course work and research that was not appropriate to their leadership roles in schools and organizations. Moreover, Levine observed universities used the degrees interchangeably and had similar requirements irrespective of the degree. This latter claim about the inappropriateness of the degree serves as a reminder of the PhD–EdD debate that has been going on for many years (Anderson 1983; Clifford and Guthrie 1988; Deering 1998; Perry 2012; Shulman et al. 2006). Key to making programs successful and appropriate are faculty members who work in these programs because they develop curriculum, teach courses, and assess students' performance. To change the EdD, faculty members in these programs must commit to changing their perceptions, communicating new positions, and innovating within the programs (Perry 2012).

Theoretical framework

Two strands of literature guided this study: the literature on diffusion and adoption of innovations (Rogers 2003) and the literature on revisions of EdD programs (CPED 2009; Perry 2012; Perry and Imig 2008; Shulman et al. 2006). Rogers (2003) offered a powerful theory on adoption of innovations that has been demonstrated to be useful in a variety of settings including marketing, education, agriculture, health care, and so forth. Rogers suggested there were four essential components in the innovation diffusion and adoption model: (a) the innovation, (b) communication channels, (c) time, and (d) a social system. First, to be adopted by others, the innovation must have conveyed a relative advantage; been compatible with the needs of the adopter; not been overly complex to provide ease of adoption; allowed for a trial before full adoption; and provided opportunities for observing others using the innovation (Rogers 2003). Second, communication channels must have been available to allow the flow of information about the innovation from one individual or group to another. Third, Rogers considered time as a crucial factor in diffusion. For individuals to have obtained knowledge, been persuaded about the innovation, made a decision about it, implemented it, and confirmed/disconfirmed its usefulness takes time and was viewed as a developmental process. The social system reflected a group of interested individuals; in the current situation, faculty members at various CPED-affiliated colleges and schools of education who were working in newly developed or revised EdD programs.

The second framework informing the conduct of this study was the literature on revisions to EdD programs. In response to continued severe criticisms of the EdD noted above, Shulman et al. (2006, 3) cogently argued EdD programs must develop 'a robust and distinct practice doctorate ... with a distinctive scholarly base.' In re-opening the debate, Shulman and his colleagues called for colleges of education to distinguish the EdD from the PhD. In this influential piece, Shulman et al. indicated it was important to make clear the distinctions between the two degrees to ensure appropriate preparation of prospective educational leaders.

To make this distinction apparent, Shulman et al. (2006) advised that the PhD was a research intensive degree that provided recipients with the means to serve as stewards of the discipline by generating new knowledge, critically conserving important ideas, and developing theory among many other practices relevant to those holding the PhD. To attain this end, PhD students participated in programs on a full-time basis as they served as apprentices to develop the necessary skills and dispositions for focusing on and conducting research work.

By comparison, Shulman et al. (2006) regarded the EdD as being a practice intensive degree that should meet the needs of working professionals. Those pursuing the EdD intended to become more capable of taking on the challenges of teaching and leadership, critically analyzing research and policy, and blending practical wisdom with professional knowledge and research to solve problems of practice as they merged practice, theory, and research. Moreover, EdD students generally attended programs on a part-time basis as they continued their employment and worked toward developing leadership skills to foster educational change. Further, based on these key characteristics of the EdD, Shulman and his colleagues urged that EdD programs be redesigned to take account of these characteristics and thus make EdD programs appropriate for the preparation of educational and school leaders.

Context: The CPED

Since 2007, CPED and its partner colleges of education have worked to re-envision, re-define, and reclaim the EdD as the professional degree of choice for the next generation of educational leaders (CPED 2009; Perry 2012; Perry and Imig 2008; Shulman 2007). CPED and its partner institutions have developed new educational doctorate programs that were more responsive to the needs of practicing professionals who currently serve or will serve as leaders in PK-12 schools, colleges, and other organizations. Shulman (2007) envisioned CPED as a grassroots movement among faculty members from various universities working together to change the status and purpose of the EdD. To Shulman, CPED colleges would draw on their own experiences, values, and visions to construct doctoral programs to best meet the needs of practitioners working in varied contexts in local settings.

Currently, a consortium of over 88 colleges and schools of education have taken up Shulman et al.'s (2006) challenge. For the past seven years, CPED-affiliated colleges of education have worked collaboratively to make the EdD more relevant for practitioners (CPED 2009; Perry 2012). CPED leaders, administrators, faculty members, and students from member institutions convene twice each year to reaffirm their vision, share ideas, and engage in critical dialogue. The goal of CPED and its affiliated colleges of education has been to develop educational leaders who are scholarly practitioners, individuals who combined their practical wisdom, professional knowledge, and research skills to identify, frame, and solve problems of practice in their workplace settings (CPED 2009).

To provide direction in attaining this goal across the varied contexts of member institutions, CPED-affiliated colleges have been guided by, a set of six working principles that identified critical aspects of re-envisioned EdD programs (CPED 2009). As a result, newly designed/redesigned programs:

- (1) are framed around questions of equity, ethics, and social justice to bring about solutions to complex problems of practice (Principle 1);
- (2) prepare leaders, who can construct and apply knowledge to make a positive difference in the lives of individuals, families, organizations, and communities (Principle 2);
- (3) provide opportunities for candidates to develop and demonstrate collaboration and communication skills to work with diverse communities and to build partnerships (Principle 3);

- (4) provide field-based opportunities to analyze problems of practice and use multiple frames to develop meaningful solutions (Principle 4);
- (5) are grounded in and developed a professional knowledge base that integrates both practical and research knowledge that links theory with systemic and systematic inquiry (Principle 5); and
- (6) emphasize the generation, transformation, and use of professional knowledge and practice (Principle 6).

In addition to guidance by the six principles, CPED-influenced programs also have utilized design features developed by consortium members that included: laboratories of practice, signature pedagogies, and dissertations in practice (CPED 2010). Laboratories of practice refers to applying what is being learned in a doctoral program to the workplace setting, which requires what is being taught to be relevant to intelligently inform practice. Signature pedagogies include those disciplinary approaches that are subsequently and seamlessly used in the profession. Examples such as using cycles of action research throughout a program or a focus on equity and social justice in all coursework illustrate the nature of signature pedagogies because these approaches will be used in subsequent professional work (Shulman 2005). Dissertations in practice are culminating scholarly endeavors that influence a complex problem of practice. Use of these CPED working principles and design features has resulted in greatly revised EdD programs throughout the USA (Buss et al. 2014; CPED 2009, 2010; Macintyre Latta and Wunder 2012; Perry 2012; Perry and Imig 2008).

Initially, the six CPED principles and the CPED design features may appear to be particular to the US context. However, more reflective consideration shows CPED principles and design features are closely related to issues that led to the development of PPD in the UK, Australia, and the USA. For example, Principle 2 on preparing leaders to make differences in individuals, families, organizations, and communities, and Principle 3 on collaboration skills and building partnerships have also been essential considerations in PPD, which emphasize the development of skills and training to become a more accomplished professional (Lester 2004; Manathunga et al. 2012; Park 2005; Scott et al. 2004). Similarly, Principle 4 on providing field-based opportunities for analyzing and solving problems of practice and Principle 6 on using professional knowledge and practice together; as well as the CPED design features such as laboratories of practice and dissertations in practice reflect a focus on dealing with and resolving problems occurring in the workplace setting, which are characteristic of PPD and second-generation doctorates in the UK, Australia, and the USA (Lee, Green, and Brennan 2000; Lester 2004; Park 2005; Scott et al. 2004).

Taken together, the research literature and the efforts to implement new, more suitable EdD programs that appropriately prepare scholarly and influential practitioners and educational leaders suggested the following research questions.

- (1) How and to what extent have variables associated with Rogers' theory on diffusion and adoption of an innovation influenced program changes, implementation efforts, and outcomes in newly designed/redesigned EdD programs?
- (2) How and to what extent have CPED's working principles influenced program changes, implementation efforts, and outcomes in newly designed/redesigned EdD programs?

Method

Participants

Sixty-one faculty members at 12 of the 21 original CPED- affiliated universities throughout the USA took part in this study. All participants' responses were obtained using an online survey. These faculty members participated in shaping, developing, and delivering the innovative EdD programs at their institutions.

Instrument

The survey was approved for use by the Institutional Review Board. The survey contained 55 closed-ended items that respondents rated on a six-point Likert scale from 1 = *Strongly Disagree* to 6 = *Strongly Agree*. Generally, these Likert items asked respondents to assess (a) changes to their programs, (b) benefits resulting from their participation in CPED, (c) their use of the six CPED working principles, (d) conceptualizations and outcomes of various redesign efforts, and (e) Rogers' variables from diffusion and adoption of innovations including communication channels, time, social system of faculty members, and adoption of redesign efforts. Additionally, participants responded to two open-ended items: (a) Describe two important changes that occurred in your program because of your participation in CPED and (b) Do you have any comments or questions?

Data analyses

Quantitative data were analyzed using regression procedures following reliability analyses. Qualitative data were analyzed using the constant comparative method and interpretive data procedures (Strauss and Corbin 1998). In the constant comparative method, new information from respondents' responses is compared with previous codes, that is, constant comparisons are made. If the new information does not fit under a previous code, a new code is established. Thus, first, we conducted a line-by-line analysis of the data to generate initial codes. After beginning the initial coding, researchers met and discussed the codes and came to consensus.

Subsequently, we completed the coding and aggregated these codes into larger categories and then into larger theme-related components from which emerging themes were identified (Strauss and Corbin). At each step of the process, the data were revisited and carefully reflected on to ensure they continued to support the higher level interpretations. Emerging themes were substantiated and supported with quotes from the participants.

Results

Quantitative results

With respect to program revision, six criterion variables were examined: (a) program changes; (b) implementation of the innovation, the new or redesigned EdD program; (c) program orientation; (d) program attractiveness; (e) program learning environment; and (f) program outcomes because of participating in CPED. Nine predictor variables, three of which were based on Rogers' theory of adoption of an innovation and six of which were CPED Principles, were used to predict each of the criterion variables. The predictor variables were: (a) communication channels, (b) time, (c) social

system of faculty members, (d) CPED Principle 1, (e) CPED Principle 2, (f) CPED Principle 3, (g) CPED Principle 4, (h) CPED Principle 5, and (i) CPED Principle 6.

Cronbach’s α reliability coefficients of the predictor variables ranged from .56 to .90 with a median of .81. See Table 1 for the variables and the reliability coefficients. One variable, CPED Principle 1 had a reliability coefficient well below the typically accepted level of .70. For the criterion variables, Cronbach’s α reliability coefficients ranged from .82 to .98 with a median of .92. Details about the criterion and predictor

Table 1. Criterion and predictor variables for regression analyses along with example items and Cronbach’s α .

Criterion variable	Examples of items on survey	Cronbach’s α coefficient of scale
Program changes	New program structured differently than old, new program better meets student needs, and so on	.94
Innovation implementation	Faculty are implementing our new program and faculty are enacting program changes	.98
Program orientation	Focus on professional issues, influence on educational practice, and so on	.92
Program attractiveness	More students are attracted to program, completion rates have risen, and so on	.82
Program learning environment	More engagement of students and faculty, authentic experiences in clinical settings, and so on	.82
Program benefits from participating in CPED	More high quality school leaders, quality of doctoral education has improved, and so on	.92
Predictor variable	Examples of items on survey	Cronbach’s α coefficient of scale
Communication channels	Communication channels were open ... , as our program changed, information was disseminated to faculty, and so on	.83
Time	Faculty members afforded time to learn about changes in program, and so on	.79
Social system of faculty members	I have adopted the changes made in our EdD program, and so on	.86
CPED Principle 1	Foster equity and social justice; program was created to bring about solutions to problems of practice, and so on	.56
CPED Principle 2	Program prepares students to apply what they learn to make a positive difference in lives of individuals, families, ... , or communities, and so on	.80
CPED Principle 3	Provides opportunities for students to develop collaboration skills and so on	.81
CPED Principle 4	Provides field-based opportunities, encourages students to analyze problems of practice, and so on	.69
CPED Principle 5	Links theory with systemic and systematic inquiry, and so on	.90
CPED Principle 6	Emphasizes generation of professional knowledge and practice, and so on	.89

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variables including example items from the survey and Cronbach's α coefficients for the various variables are presented in Table 1.

Results from six stepwise regression analyses showed that several different predictor variables were useful in predicting the criterion variables. The regression analysis for program changes was significant, $F(2, 58) = 76.65, p < .001$, with adjusted $R^2 = .72$. Significant predictor variables that predicted program changes were Rogers' concept of communication channels and CPED Principle 4, field-based opportunities for solving problems of practice. These results along with those for the other regression analyses are summarized in Table 2 where the criterion variables are presented in the first column followed by statistical test results, adjusted R^2 values, and the significant predictor variables in the final column. With respect to innovation implementation, the regression analysis was significant, $F(3, 57) = 40.65, p < .001$, with adjusted $R^2 = .67$. Significant predictor variables for predicting implementation of the innovation were a social system of faculty members from Rogers' theory; Rogers' communication channels; and CPED Principle 1, foster equity and social justice and solve problems of practice.

For the various program outcome variables, the following results were obtained. The regression analysis for program orientation was significant, $F(3, 57) = 44.13, p < .001$, with adjusted $R^2 = .68$. Significant predictor variables for predicting program orientation were CPED Principle 1, foster equity and social justice and solve problems of practice; the social system of faculty members from Rogers' theory; and CPED Principle 4, field-based opportunities for solving problems of practice. For program attractiveness, the regression analysis was significant, $F(2, 58) = 11.20, p < .001$, with adjusted $R^2 = .25$. Statistically significant predictor variables useful for predicting program attractiveness were Rogers' social system of faculty members and time from Rogers' theory. With respect to program learning environment, the regression analysis was significant, $F(2, 58) = 29.97, p < .001$, with adjusted $R^2 = .49$. Significant

Table 2. Results of stepwise regression analyses.

Criterion variable	df, F test statistic and p	Adjusted R^2	Individual predictor variables that were statistically significant
Program changes	$F(2, 58) = 76.65, p < .001$	.72	Communication channels, CPED Principle 4
Innovation implementation	$F(3, 57) = 40.65, p < .001$	.67	Social system of faculty members, Communication channels, CPED Principle 1
Program orientation	$F(3, 57) = 44.13, p < .001$	.68	CPED Principle 1, Social system of faculty members, CPED Principle 4
Program attractiveness	$F(2, 58) = 11.20, p < .001$	.25	Social system of faculty members, Time
Program learning environment	$F(2, 58) = 29.97, p < .001$	.49	Communication channels, CPED Principle 4
Program benefits from participating in CPED	$F(3, 57) = 40.23, p < .001$	.66	CPED Principle 2, Communication channels, CPED Principle 4

predictor variables for predicting program learning environment were communication channels from Rogers' theory and CPED Principle 4, field-based opportunities for solving problems of practice. Finally, for program benefits from participating in CPED, the regression analysis was significant, $F(3, 57) = 40.23, p < .001$, with adjusted $R^2 = .66$. Significant predictor variables for predicting program benefits from participating in CPED were CPED Principle 2, apply knowledge to make a positive difference in peoples' lives; Rogers' communication channels; and CPED Principle 4, field-based opportunities for solving problems of practice.

Qualitative results

Six themes emerged based on aggregating subordinate theme-related concepts under the superordinate theme. These were: (a) program focus/orientation, (b) program changes, (c) logistics of program implementation, (d) faculty members' perspective, (e) program outcomes because of changes, and (f) the value of participating in CPED. Details about the themes and theme-related concepts that led to the themes are provided in Table 3.

Program focus/orientation

Respondents provided diverse examples of how their program orientation was influenced by participation in the CPED consortium, which were captured in theme 1. Theme 1, program focus/orientation, was exemplified by the theme-related concepts: problems of practice, connecting practice and theory, a focus on social justice, dissertations in practice, practical work applied to the work place, and improving practice. One faculty member wrote, 'There is a focus on social justice. Problems of practice are central to the learning.' Another scribed, '[the] image of [the] program is characteristically about social justice, its impact and effects ...' A third logged, '[there is] greater emphasis on problems of practice in our students' professional context.' Another recorded, '[there is] increased support for the research/dissertation in practice component.' Finally, a fifth faculty member noted, '[there is an] applied focus on problems of practice.' Taken together, faculty members' responses suggested their programs had a distinctive orientation that encouraged and fostered social justice, advanced resolution of problems of practice, and sought to improve practice.

Program changes

Respondents offered a wide variety of program changes that resulted from their programs' affiliation with CPED. Program changes, theme 2, was characterized by the theme-related concepts: new organizational structure, field-based approach to program work, use of a signature pedagogy, practice-based assignments, redesign of the internship, redesign of the program, core courses, and embedded field work. One respondent penned, '[There is] a new organizational structure for a college-wide EdD.' Another scribed, 'Signature pedagogy was adopted ... in many courses.' A third concisely noted, 'redesigned internship.' Another documented, 'We have a core of courses that are sequenced and focused on complex matters.' A fifth respondent recorded, 'Embedded field work is the signature pedagogy of the program.' Again, these quotes were indicative of the varied nature of general program changes in CPED-affiliated EdD programs.

Table 3. Themes and theme-related components.

Theme	Theme-related components	
<i>Program focus/ orientation</i>	Problem of practice	Dissertation in practice
	Connect practice and theory	Practical degree work applied to work place
<i>Program changes</i>	Focus on social justice	Improve practice
	New organizational structure	Field-based approach to program work
<i>Program logistics</i>	Use of a signature pedagogy	Practice-based assignments
	Redesign internship	Redesign program
	Core courses	Embedded field work
	Cohorts	Student collaboration
<i>Faculty members' perspective</i>	Community of practice	Scaffolding student work
	Faculty members serve as facilitator	New ways to manage student accountability (shared work)
	Faculty load too heavy	Need for greater flexibility
	Increased collaboration with students and faculty members	Stronger framework for decision making
<i>Program outcomes</i>	More reflection on programs	More faculty dialogue and discussion
	Continuous improvement view	
	Increased graduation rates	Higher quality students
<i>Value of CPED partnership</i>	Students have higher profile in schools	Student impact at work site
	Networking	CPED very helpful
	Safe to explore innovation	Program improved because of CPED participation
	CPED ideals validate and support our program	Our program existed before CPED, so not much influence (disconfirming data)

Program logistics

With respect to how programs were influenced by participation in CPED, responses indicated a pragmatic aspect related to program delivery and logistics. Theme 3, program logistics, was typified by logistical considerations: cohorts, student collaboration, communities of practice, scaffolding, faculty members serving as facilitators, and the need for new ways to manage student accountability. One respondent scribed, 'Students are collaborating with each other in project assignments.' Another chronicled, 'Development of collaborative dissertations, and managing the individual accountability in that process.' A third penned, 'Faculty facilitates instead of direct[ing] student.' Another documented, '[There is] a more practical infusion of research methodology courses into the program.' A fifth noted, '[There is] a greater sense of community among student groups ...'

Faculty members' changes

Respondents suggested participation in CPED had affected faculty members in a variety of ways. Theme 4, faculty members' changes, was characterized by the need for more collaboration, increased reflection, greater flexibility, more dialogue with others, and continuous improvement. One respondent wrote, 'Faculty collaboration has increased.' Another scribed, 'Our program faculty lift [*sic*] [hold] discussions about CPED in our gatherings and meetings ... to test and gauge our own efforts.' A third documented, 'At our Ed Doc faculty meetings we often talk about the reasons we are following a certain path.' A fourth recorded, 'Faculty are more flexible in their teaching methods ...' Finally, a fifth respondent authored, 'Participation in CPED has continued to encourage the faculty members who are involved in our program to reflect on the program and make changes as appropriate to implement a more effective program.'

Program outcomes

Faculty members' responses indicated CPED participation had influenced program outcomes. Program outcomes, theme 5, was exemplified by the theme-related components: increased graduation rates, higher quality and more diverse students, student impact at work site, and students having higher profiles as school sites. One respondent noted, 'Students are more ready to tackle real world problems.' A second wrote, 'Students impact their work site; making a difference in their schools.' Another scribed, 'The quality and diversity of doctoral students have been enhanced.' A fourth chronicled, '[There was] higher quality student work.' Another respondent recorded, 'We have a higher profile reputation based on the work of our students in schools.' A sixth respondent succinctly noted, '[a] greater sense of community ... leading to greater graduation rates.'

Value of CPED partnership

Faculty members readily offered comments that indicated they perceived the value of being involved as a CPED member. The sixth theme, value of CPED partnership was characterized by theme-related components like networking, CPED helpfulness, exploring innovation, program improvement because of CPED, and CPED ideals validated and support the program. One respondent logged, 'Participation in CPED has validated and supported our program and revisions we continue to make.' Another scribed, 'CPED has influenced ... our ability to hold true to the ideals of CPED due to the collaboration with the nation-wide effort.' A third authored, 'Participation in CPED has continued to encourage the faculty members ...' Another respondent wrote, 'We are grateful to be a member and to learn from and with other CPED members.' Still another faculty member documented, 'Association with other CPED institutions has made for a much more collaborative process.' One respondent recorded, 'CPED has offered important networking and a safe space to explore innovations among colleagues who are grappling with similar issues and are facing similar challenges.' Finally, a respondent penned, 'Our program has become a better program because of our participation in CPED.' Because some institutions involved in the CPED consortium had begun to re-design their programs prior to joining there was disconfirming data. One respondent noted, '... our program has been around so long that

CPED was not always the driving force behind the design of our program.’ Nevertheless, taken together, these data suggested faculty members perceived great benefits for their programs as a result of their participation in CPED.

Discussion

The discussion section consists of three parts. First, we discuss the complementary nature of the quantitative and qualitative data, which clearly support one another. Next, we interpret the regression analyses, paying particular attention to Rogers’ theory and how it applies to implementation of innovative EdD programs as well as the CPED working principles. We close by offering implications for (a) program design, (b) program leaders and faculty members, (c) research, and (d) students who are seeking a professionally relevant EdD program.

Complementarity of the data

The quantitative and qualitative data exhibit strong complementarity, a term coined by Greene (2007) that indicates they support one another, in this case, quite well. For example, the first quantitative criterion variable in Table 2 is program orientation. Similarly, the first qualitative theme in Table 3 is program focus/orientation. This complementarity is clearly reflected when items from the online questionnaire such as ‘focus on professional issues’ and ‘influence on educational practice’ are juxtaposed against respondents’ open-ended responses like, ‘There is a focus on social justice. Problems of practice are central to the learning,’ and ‘[there is] greater emphasis on problems of practice in our students’ professional context.’ Clearly these data are highly complementary in nature.

Moreover, the fourth quantitative variable in Table 2, program changes, is complemented by the second qualitative theme from Table 3. Again, the complementary nature of the data is clear when we consider questionnaire items such as ‘new program structured differently than old’ and ‘new program better meets student needs’ in light of the qualitative responses of faculty members who wrote, ‘[There is] a new organizational structure for a college-wide EdD,’ ‘redesigned internship,’ and ‘Embedded field work is the signature pedagogy of the program.’ Again, these data are unmistakably complementary.

In addition, the fifth variable in Table 2, program benefits from participating in CPED, is complemented by the final theme from Table 3, value of the CPED partnership. This complementarity is evident when we consider items from the online questionnaire such as ‘more high quality school leaders’ and ‘quality of doctoral education has improved’ are compared to respondents’ open-ended responses like, ‘Participation in CPED has validated and supported our program and revisions we continue to make,’ and ‘Our program has become a better program because of our participation in CPED.’ Again, these data are complementary in nature.

A closer examination of the influence of Rogers’ theory and CPED working principles

Taken together, the results from the regression analyses indicate Rogers’ (2003) theory about adoption of an innovation is helpful in understanding the innovations and changes that were made to EdD programs. Rogers (2003) maintains,

Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas. *Communication* is a process in which participants create and share information with one another in order to reach a mutual understanding. (5)

Rogers' concepts of time, communication channels, and the social system of faculty members are predictive of criterion variables about the revision and implementation of new or revised EdD programs. The outcomes for communication channels and a social system reflect the reality that faculty members' collaborative group efforts are critical in carrying out the redesign and implementation processes in these programs. Further, effective communication among faculty members is a crucial aspect of such program design/redesign efforts.

Moreover, for the innovation to be adapted and implemented, communication functions as a two-way process that brings individuals together in a convergent communication process. The communication process is of necessity quite robust to afford innovators opportunities to share the subtleties of the innovation, especially as it is adapted to the particular context. Thus, extensive conversations about a guiding vision and goals, implementation strategies and logistics, communicating the change vision, and so on become a critical part of the innovation process, which are reflected in the results obtained in this study.

By its nature, diffusion is about communicating a new idea. With any new idea, a degree of uncertainty exists about the innovation. To the extent that those within the social network, that is, faculty members, share information that reduces uncertainty, the innovation is more likely to be adopted and subsequently adapted to the particular doctoral program setting.

In addition to Rogers' (2003) diffusion of innovation variables being useful predictors of new program outcomes, implementation of innovations, and so on, two CPED working principles played key predictive roles. CPED Principle 4, field-based opportunities for solving problems of practice, and Principle 1, foster equity and social justice and solve problems of practice are also useful predictors of EdD program changes. These variables tend to be influential in predicting the outcome variables because they more closely reflect attempts by program faculty members to create programs that are responsive to students' interests in working on meaningful, authentic problems of practice during their doctoral studies.

Taken together, it is clear that Rogers' diffusion of innovation variables, particularly communication channels and a social system of faculty members, are associated with adoption of innovative EdD programs and practices. Moreover, CPED working principles, especially principles 4 and 1, are also helpful in understanding adoption of innovative EdD programs. A brief discussion of the high values of the adjusted R^2 is also warranted. Typically, R^2 values are considerably lower than those attained in the current study. Nevertheless, as Ajzen and Gilbert Cote (2008) point out, the connection between attitudes and behaviors is stronger to the extent that the measures involve 'the same action, context, target and time elements' (299). Thus, in the current context, the target, the criterion variables as measured by program changes and the outcomes are perceived as being very closely related to actions, contexts, and time, which are represented in the predictor variables by using Roger's communication channels, social system of faculty members, and time; along with the CPED working principles.

Implications

In this section, we discuss the implications for program design, program leaders, and faculty members, further research, and students.

Implications for program design

Using a set of working principles and design features, CPED-affiliated colleges and schools of education are working to re-envision, revise, and redesign the EdD to make it more relevant to practice-based educational leaders (CPED 2009, 2010). Such efforts are consistent with Shulman et al.'s (2006) call to establish 'a robust and distinct practice doctorate' (3), which ensures the appropriate preparation of prospective educational leaders. Further and consistent with Shulman et al.'s perspectives, data from faculty members indicate general program changes, changes in program orientation, program learning environment, and program implementation are viewed as: (a) being practice intensive to meet the needs of working professionals; (b) aiding program participants in becoming more capable of taking on the challenges of teaching and leadership; (c) fostering critical analysis of research and policy; and (d) blending practical wisdom with professional knowledge and research to solve problems of practice. These program implications are consistent with the suggestion of Manathunga et al. (2012) who capture the essence of the implications for program design/redesign when they suggest, 'Students require scaffolded opportunities to reflect upon, process and apply these experiences to their research work and emerging identities' (853).

Implications for program leaders and faculty members

With respect to implications for program leaders, results suggest that for change to occur resources must be made available to faculty members to ensure adoption of the innovation. In particular, based on these results, faculty members benefit from being provided with time, communication channels, and a collegial social system that facilitates communication among those tasked with designing and implementing innovative doctoral programs. Availability of such resources is consistent with Rogers' (2003) framework on adoption of innovations in which time, communications, and a social system play essential roles. Moreover, leaders would be well advised to carefully consider and employ the six CPED working principles or related principles as they seek to design/redesign doctoral programs to make them more responsive to those working in education-related professional careers.

For faculty members, the implications are also quite clear. First, new and redesigned EdD programs can be developed and implemented when faculty members capitalize on Rogers' (2003) variables – (a) time, (b) communication channels, and (c) their social network of colleagues. In particular, program (a) changes, (b) implementation, (c) attractiveness, and (d) program learning environment were dramatically affected by variables from Rogers' framework. Moreover, faculty members' consideration of CPED Principles 4 and 1 would appear to be useful as they consider developing and implementing new EdD or PPD programs.

Implications for research

First, the use of quantitative and qualitative data allowed us to 'unpack' the quantitative data by using the qualitative data to attain a deeper understanding of the design/redesign

efforts and their outcomes conducted by faculty members. In future research, the qualitative data could be more fully investigated by conducting interviews with faculty members who designed and delivered new EdD programs that followed CPED principles while also taking into account Rogers' (2003) framework on adoption of an innovation. With more in-depth questions, researchers could gain better insights into issues related to effective development and implementation of new EdD programs. Second, application of Rogers' framework on adoption of an innovation proved to be useful in the current investigation of innovation in doctoral programs. Application of Rogers' framework that compared faculty members who recently designed/redesigned and implemented new EdD programs with those whose programs have been implemented for several years may be quite instructive, as well. More generally, use of Rogers' framework may be helpful in understanding adoption of any innovation and, for instance, why an innovation may have succeeded or failed.

Implications for students

Educational professionals who are seeking a relevant EdD program that will develop them as scholarly practitioners and educational leaders may wish to consider questions like the following. Will participation in the doctoral program facilitate improvement of their or their subordinates' day-to-day practices and help those whom they serve? Is there a strong connection between coursework and their practice? Does the program foster practitioner-focused 'researching skills' that can be used to improve their practices (Buss et al. 2014)? Does the program offer training in the skills, methodologies, and reflective talents that can be applied by leaders in career settings (see Park 2005; Walker 2008; Winter, Griffiths, and Green 2000)? Does the program better prepare them to deal with problems/issues in their workplace settings (see Manathunga et al. 2012)? If the answers to these questions are yes, then the program is likely to be beneficial to them, their practice, and those whom they serve in their workplace settings.

Conclusion

This initial data collection from participating faculty members was undertaken to assess faculty members' perceptions of the influence of CPED participation on EdD program redesign, revision, and changes. Quantitative data indicated Rogers' conceptions about adoption of an innovation and CPED principles were helpful in understanding program redesign and changes. Further, qualitative data exhibited strong complementarity, that is, supported and provided a deeper understanding of the quantitative data (Greene 2007). Taken together, the data provide initial evidence that CPED principles and Rogers' conceptions about adoption of an innovation are useful in understanding EdD program revision and redesign efforts. The data are informative in the sense that they provide a way to 'unpack' the various innovations that have been undertaken by programs in various colleges and schools of education throughout the USA. In conclusion, these initial results attest to successes in developing more relevant and engaging education doctoral programs, which can be used by educational practitioners to systematically examine and improve their professional practices and increase the educational outcomes of the students whom they serve. Moreover, these results will continue to inform decisions for those working in and leading these redesigned programs and may offer initial ideas to other program leaders who might be interested in re-envisioning and re-designing other EdD or PPD programs.

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