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Tools that Facilitate the Reflective Process: Supporting the Learning and Development of College Educators

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Abstract

The author discusses an ongoing study that focuses on one particular concept, personal and professional reflection, as a means toward learning and development for educators working within the system of higher education. The purpose of this paper was to give greater attention to the *tools* component within the *Event Path* model, a reflective process that emerged from the data. Faculty members were asked to define reflection and discuss tools that they use to facilitate their reflection. A thorough description of those tools and the characteristics associated with them is detailed. The author argues that faculty members and other professionals should realize that a diverse collection of tools exist and using the most appropriate tool can increase the likelihood that they will have an improved capacity to be reflective teachers and researchers, ultimately improving their professional practices.

Higher education in America is undergoing profound cultural and social transformation. Paramount to this transformation is a reconstitution of the role of faculty members. The implications for individual faculty members and the institutions that they serve are significant. The critical need for professional development of faculty members is practical and strategic. In this context, it is important that we consider how university faculty members learn and develop within the context and culture of higher education. One path may be the application of reflection on practice as an approach for faculty members' learning and development. As a way to help faculty members develop professionally, the author conducted a study in which participants were asked to define reflection and discuss *tools* they use to facilitate their reflective process. This article describes those tools and the characteristics associated with them in an effort to help faculty members, along with other professionals,

make use of the *most* appropriate tool(s) to successfully navigate the reflective process, increasing the likelihood that they will learn and develop professionally.

Reflective Tools

Historically, the literature focusing on the types of *tools* to reflect has been limited, and much of the literature focuses on journaling (Maloney & Campbell-Evans, 2002) and portfolios (Ellsworth, 2002; Willis & Davies, 2002). More recently, additional tools have been acknowledged as a means to facilitate reflection, which faculty members may not be aware of and, therefore, do not use systematically to help reflect on their practice(s).

Heyler (2015) identified short narrative statements, portfolios, debates, and reflective discussions as optimal tools that serve to facilitate reflection within the workplace. Studies have considered various

research techniques to be successful reflection tools (Hagevik, Aydeniz, & Rowell, 2012; Orange, 2016). One form, specifically action research, has been shown to promote critical reflective thinking (Hagevik et al., 2012). Hagevik et al. (2012) described action research as being a way to promote a cyclical process of improvement that includes (1) describing a problem, (2) seeking knowledge, (3) collecting data, and (4) evaluating what changes need to be made. Orange (2016) argued that qualitative personal 'research' can assist researchers on the analysis process, document insights, and consider biases within studies. Specifically, reflective journaling about research can be considered (qualitative) research in itself, so long as it has both the emotional piece and an analytical data aspect. It is evident that 'reflective research' has been a tool prevalent within education contexts (Farr & Riordan, 2015; Hagevik et al., 2012; Orange, 2016; O'Reilly & Milner, 2015; Tîru & Tîru, 2018).

As technology advances, learning is occurring through web-based platforms. O'Reilly and Milner (2015) explored college students' preferred technology-based tool to reflect. They identified e-journals, reflective summaries, online workshops, and digital video recordings as well utilized tools. Individual methods of reflection (i.e., journaling, blogging, and individual reflective summaries) tend to be favored by many individuals engaging in the learning process (Farr & Riordan, 2015; O'Reilly & Milner, 2015). Farr and Riordan (2015) clarified that individual reflective practices (i.e., blogs) foster narration and the expression of identities, while chat rooms and discussion forums promote emotional and affective engagement. In addition, Hickson (2012) noted that blogs, a reflective tool, can be valuable for professional development, including keeping up with new technology, utilizing lifelong learning, and developing a

platform to discuss solutions to problems. Hickson (2012) specifically discussed the effectiveness of reflecting, through blogs, to promote a learning environment that stimulates conversation about professional judgment and action.

Not only can reflection be used to enhance learning, research shows that reflection can be helpful for designing and implementing new protocols and programs (Connell, 2016; Karnieli- Miller, Palombo, & Meitar, 2018). Connell (2016) suggested utilizing critical reflection to plan and evaluate library programs by noting changes in people's behavior, attitude, skills, knowledge, condition, and status in order to enhance library successes. Libraries can develop future programs around the findings from the data (considered a reflective tool) by identifying aspects that are successful as well as where change needs to happen.

Within the medical field, something that proves to be a challenge for clinicians is breaking bad news to patients and patients' families (Karnieli-Miller et al., 2018). The SPIKE protocol (i.e., Setting, Perception, Invitation, Knowledge, Empathy, and Summary & Setting) was developed to assist future clinicians in bettering their delivery of bad news by reflecting upon past observational and first-hand experiences via narrative writings (Karnieli- Miller et al., 2018). Specifically, the protocol prompted future clinicians to not only consider where and when to deliver the news, but also to focus on analyzing the encounter and reflecting upon thoughts and feelings to better deliver such information.

Reflection can be useful in professional environments outside of the educational setting as well (Bernabeo, Holmboe, Ross, Chesluk, & Ginsburg, 2013; Bryne & Shepherd, 2015; Connell, 2016;

Helyer, 2015; Hickson, 2012; Manasia & Pârvan, 2014). Bryne and Shepherd (2015) gathered personal narratives in the form of informational interviews and determined that using emotion-focused coping, a (critical) reflective tool, allowed business owners to make sense of a past business failure. By reflecting on shortcomings, times of suffering, and problem focused coping, past business experiences can be adjusted or thought of from new viewpoints.

Another professional field utilizing reflective tools is Social Work. By using blogs to document debriefings, raise awareness, and generally contemplate cases, social workers benefit from the reflective practice (Hickson, 2012). Within the realm of practicing clinicians, reflection can be beneficial as well. By utilizing realistic vignettes as a tool to challenge practitioners' professionalism, clinicians get the opportunity to open a safe forum to guide physicians in assessing themselves on their professional behavior (Bernabeo et al., 2013).

The author published some earlier findings, identifying tools faculty members use to facilitate the reflective process and discussing characteristics associated with each tool. The reflective tools that emerged from these data included peer feedback in which the problem is directly/is not directly observed, journaling, student input, and shared research through conference presentations and publications. The author also pinpointed which tool may be most appropriate to use to facilitate the reflective process when taking into account the problem the faculty member is reflecting upon.

Methods

In the current study, the author identified additional *tools* that facilitate the reflective process and their characteristics and provides insight as to which tool may be most suitable to use, based on the specific problem, to assist the reflective process.

Research Questions

The research questions for the study included:
1. What purpose(s) does the tool component serve in the reflective process?
2. Are there tools that appear to be more useful?
3. How might the practice of using specific tools aid in the faculty members' professional learning and development?

Population and Data

A voluntary sample was comprised of 25 professors from Colleges of Education, Arts and Sciences, Business, and Nursing and Health Sciences, at a private, liberal arts university in the Midwest. Located in Ohio, this institution of higher education was guided by a Christian heritage, and espouses core values, such as individuality, character development, and excellence in teaching. The faculty members varied, ranging from tenure-track to tenured faculty who teach undergraduate and graduate courses. These colleges had implemented a reflection- based model of annual faculty review and professional development for tenure-track as well as tenured faculty. The faculty who volunteered comprised approximately 14% of the total college faculty at the time of the study. All volunteers signed informed consent statements that explained the study and the intended use of their responses.

The sample included individuals who selected to participate at an anonymous level— completing the survey only. Faculty members defined reflection and discussed processes that facilitated their learning and development using reflective processes. Of those 25 participants, seven chose to participate at a confidential level by submitting reflective narrative documents; all identifiable information was excluded from reporting. Sampling bias was controlled in part through the use of archival documents (narratives), which were developed prior to the study announcement. Data and project reports were edited to ensure confidentiality of participants.

Data Analysis

A constant comparative procedure, which is a qualitative coding strategy, was used to examine the processes described in the responses to the above. Initial themes and categories among the narrative responses were established as a first step in enhancing the credibility of the project. The themes, which emerged, have been observed in related literature as cited throughout this paper, providing additional confirmatory support for reliability and credibility of the findings.

An analytic concept mapping procedure described by Novak (1998) and Novak and Gowen (1984) was used to organize the narrative data. This procedure allowed the researcher/author to organize and to label faculty member responses. The coding strategy, following Novak (1998), treated words and phrases (grammatical units) as discrete conceptual units of equal weight. Based on a logical-rational use of vocabulary definitions, these conceptual units were then clustered to establish themes. These themes were then cross-walked to the literature cited previously to establish the

reasonableness of the themes and to control or constrain researcher/author bias. The researcher/author employed a colleague with expertise in data coding to assist in the analysis process. The researcher/author and this colleague coded the first faculty member's survey responses together to standardize the coding process. Following agreement on the process to be used, two additional faculty member responses were coded and compared to monitor agreement on the process and consistency of coding. Finally, the remaining responses were coded, creating a total of 23 concept maps. It should be noted two faculty responses were too brief for meaningful analysis and were excluded from analysis. Analyses, as well as findings, were constructed and edited to protect the individual privacy of the faculty members.

Results and Discussion

The data suggested that there are numerous tools through which faculty members could reflect on their experience(s). Although the study focused on university faculty members, the author argues that other professionals could benefit from making systematic use of these tools to develop professionally. Faculty members specifically stated, within their narratives, the tools they used for reflecting.

The discussion below describes the narrative, provided by the faculty members, associated with the *tools* component of the reflective process, with implications from the broader literature review. Specific faculty member narratives are included that describe the tools. In each of these cases, the specific tool is an objective source of information about an experience (event) the faculty member had in the professional setting. The purpose of examining these tools was to help faculty members understand the characteristics associated with each tool, in

turn, choose which tool may be most appropriate for the defined problem (event), and the overall reflective process. The author scrutinized the reflective tools through the experiences of those participants surveyed and then summarized the tools and characteristics associated with certain tools in Table 1. These tools include: 1) student performance records/portfolios, 2) student focus groups/informal student feedback, 3) daily or weekly reports/comparative review of produced results overtime/faculty writing community, 4) discussions with friends, and 5) self-help/advice books for new faculty members. These reflective tools and their unique characteristics are abridged on Table 1. The numeration of Table 1 coincides with the narratives throughout this discussion section.

Table 1

Characteristics Associated with Reflective Tools

Characteristics	Student Performance Records / Portfolios	Student Focus Groups / Informal Student Feedback	Faculty Member's Daily or Weekly Reports / Comparative Review of Produced Results Over Time / Faculty Writing Community	Discussions with Personal Friends	Self-Help/Advice Books for New Faculty Members
Problem identified by individual *requesting* feedback (FB).	•		•	•	•
Problem identified by individual(s)/source(s) *giving* feedback.		•	•		•
Typically limited to one person/source providing FB to another.			•	•	•
More than one person can receive FB, reciprocal and/or group.		•	•		
Difference of opinion in FB received.		•	•	•	•
Limited to one interpretation.	•		•	•	
Less evaluative, rather more informative.			•	•	•
More evaluative.	•				•
Less diverse.	•		•	•	
More diverse.		•	•	•	•
Less accountability.	•		•	•	•
More accountability.		•	•		
Authenticity (honesty is questioned).		•			
More honest.	•		•	•	
Private.	•		•		•
Can provide specifics/examples.	•	•	•		•
Documented; option of referring back, possible revisions.		•	•	•	•
Documented; unable to gain clarification.	•				
External (outside affiliated institution) FB.				•	•
May lack commitment (due to FB outside affiliated institution).				•	•

Tool 1: Student Performance Records/Portfolios

University faculty members indicated, within their narratives, that the performance and progress of students serves as tool to facilitate reflection. When discussing preparing students to pass a professional exam, one faculty member mentioned the struggle students were having in doing so, therefore, the faculty member provided more time in class to work on professional exam problems. This faculty member stated, "Tools that I use to facilitate my reflections include…overall student performance in my classes. It is the overall student performance that I consider when making changes to my teaching methods so they are more effective." Yet another faculty member indicated the use of portfolios as a tool to be reflective. The faculty member specified,

> I have a class in community engagement. Students are working in the community with business owners and each experience is unique. Lessons learned enhance the student experience and build stronger bonds with the community. The learning process of reflection never ends.

These students participated in a portfolio-like exercise, which indicated progress made throughout the community experience. This use of portfolios is a tool the faculty member uses to reflect on the performance of the student, ultimately determining whether there is a need for change in the community engagement course.

Another faculty member commented, "Based on my reflection, I determine if objectives have been met. I alter my assignments or instructional practices. Reflection of the entire course includes examination of performance-based assessments such as portfolios." It is apparent from the narrative these faculty members provided that student performance records and portfolios are considered a tool to assist with the reflective process.

Characteristics of student performance records/portfolios tool. In the case of reviewing student performance records and portfolios, the faculty members, themselves, identify the event(s)/problem(s) as part of the reflective process, which is the first characteristic. Because it is the individual faculty member who is using the performance records and portfolios to reflect, the reflection is limited to one interpretation and therefore less diverse. In addition, when the reflection is based on one interpretation, minimal accountability of the event(s)/problem(s) exists. These items are additional characteristics of this tool.

This tool tends to hold the characteristics of *honesty and privacy*. The faculty member, in a private reflection, using performance records and portfolios, participates in a "safe" process, likely feeling more comfortable to be honest. There is an *evaluative nature* to this particular tool. Students' performance and portfolios are graded by the faculty member, and therefore student progress or lack of is evaluated through this grading procedure. This evaluation influences the reflective process of the faculty member. He/she uses the evaluation procedure to determine if change needs to occur, implementing a new event.

Another characteristic that this tool offers is the ability to extract *specifics/examples* from the performance records and portfolios as documented evidence to verify if change needs to occur. Although the performance records and portfolios are completed in a written format and can be used as future references, faculty members are *limited to the written results* of

the evaluation; they do not have the benefit of asking students why they performed as they did and/or initiate a dialogue centered on performance/portfolio results, a final characteristic of this tool.

Tool 2: Student Focus Groups/Informal Student Feedback

Faculty members indicated that student input, in its varied forms (e.g., focus groups and informal student feedback), is a reflective tool. This notion was evidenced in the following narratives: One faculty member mentioned,

> Each semester, I use student focus groups to decide which changes I'll make in future semesters. Last semester, I tweaked one class team project load and frequency. I received positive feedback in the student focus group about this new method and was planning to use it again.

Another faculty member commented,

> After I first taught Psyc XXX, a seminar style course, many students expressed dissatisfaction with the sole focus on social psychology topics. I was surprised; a bit frustrated by this, but chose to add some topics and offered selection power to the next class. The semester was much more energetic and productive and my end of semester feedback also improved substantially.

Yet another faculty member indicated that they used "student comments" to guide future course development and prep.

Characteristics of student focus groups/informal student feedback tool. The data indicated that student focus groups and informal student feedback were used as a tool to reflect. One characteristic of this tool is the *event(s)/problem(s) are typically identified by the individual(s) giving the feedback*; in this case, the student(s). In view of this characteristic, *authenticity* of the feedback may be questioned, as some students tend to offer feedback based on the grade that they believe they will receive/did receive. This situation could, potentially, influence the feedback the student(s) choose to provide to the faculty member, informally on an individual basis and/or within focus groups.

Because numerous students participate in the focus groups, a great deal *of diversity*, another characteristic, may exist in defining the event(s)/problem(s). With the presence of diversity, *difference of opinion* may occur as well. Furthermore, *more than one person can receive feedback* on the event(s)/problem(s) and the feedback could be *reciprocal* when using student focus groups as a tool to reflect; these are more characteristics associated with this tool.

Students can *include specifics/examples* from the course as part of the feedback the faculty member reflects upon, which is another characteristic of the tool. These specifics/examples *can be documented* and offer the *option of referring back* for clarification. Not only can the documentation be referred back to, but the students themselves can be contacted for further understanding and clarity of feedback, if necessary. These conditions certainly create *more accountability*, a final characteristic of this tool.

Tool 3: Daily-Weekly Reports/ Comparative Review of Produced Results Overtime/Faculty Writing Community

Daily-weekly reports, comparative review of produced results overtime and faculty writing communities emerged as tools to aid in the reflective process. To clarify, faculty members revealed creating daily

and/or weekly reports documenting what went well and not so well in their professional practices. Faculty members also reviewed and compared produced results overtime. They also joined faculty writing communities, attending regularly as a way to be reflective of their professional practices. Documenting practices over time has been evidenced in faculty members' narrative in the following ways.

One faculty member shared that she was trained by a company, which invested heavily in training, using the tactic of reflection to train. For this particular faculty member, Friday letters, and daily/weekly reports were used frequently. The faculty member stated, "I carry these tools and approaches into my work as a professor. This causes me to adjust my teaching methods every semester." This same faculty member, along with several others, mentioned a research and writing community at the institution in which they are employed, as a tool that facilitated their reflection. One faculty member revealed, "I participate in AURWC, which follows a mindfulness-based program, as a tool to reflect." Yet other faculty members disclosed,

> Mindful attention and documentation of professional work, followed by assessment of efficiencies or inefficiencies and ways to improve, seems to be my best connection with reflection. I have practiced these in AURWC program. My three years in the program has greatly improved my productivity in teaching and, especially research.

> Several of us (professors) got together regularly to brainstorm way to make the experience more meaningful and manageable for everyone. Our reflection included student feedback and our own experiences as

professors of this course. The redesigned course is now a favorite! Another faculty member declared, "Reflection seems to be the practice of reviewing the experiences and artifacts of a teaching encounter to determine what worked or didn't work; this has included…comparative reviews of produced results over time." The following example from a faculty member depicts the use of this tool:

> I have typically used individual interviews to help students select project plans. Observing that many plans seem to reflect my tastes over those of the student, I now opt to hold group interviews, letting other students speak into the process. Projects come now in much greater variety.

Characteristics of daily-weekly reports/comparative review of produced results overtime/faculty writing community tool. This tool is unique in that the characteristics associated with the tool is based on the choices the faculty member makes. For instance, the faculty member may choose to keep their daily-weekly reports/comparative review of produced results overtime /faculty writing community *private (keep to themselves)* or they may choose to share with colleagues. With this in mind, the *problem may be identified by the individual requesting feedback or by the individual giving the feedback*. The *feedback received may be limited to one person* (the faculty member themselves) and therefore *one interpretation; or feedback may come from many people* (if the faculty member chooses to share) and therefore, *difference(s) of opinion* is possible. If only one interpretation exists, then the reflection is *less diverse.* Of course, with multiple people providing feedback, *diversity* is likely to exist.

The faculty member and/or other faculty members can *include specifics/examples* as part of the input the faculty member reflects upon. Because this tool is not connected to student evaluations and/or an annual evaluation of performance, the purpose tends to be more *informative than evaluative*. If the faculty member chooses to involve other individuals by sharing reports, comparative results and/or participating in a faculty writing/research community, then *more accountability* is likely to be present; if not, less accountability would exist. All of the characteristics mentioned are associated with this particular tool.

Whether the use of daily or weekly reports, and comparative review of produced results over time are kept private or shared, it is the author's view that this tool facilitates *more honest feedback* due to privacy and/or lack of evaluative nature. If kept private, the lack of accountability to other(s) may lessen the likelihood of changed practice.

Finally, faculty member's daily or weekly reports, and comparative review of produced results over time, or the involvement of other individuals presents the option of *referring back* to the documents/individuals who provided the feedback, gaining clarification and/or possible revision.

Tool 4: Discussions with Personal Friends

Many of the narratives provided from the faculty members mentioned discussing problems (events) with personal friends as a way to facilitate reflection. The term *friends* was referenced as a reflective tool, continually distinguishing within the narrative professional colleagues and "personal friends".

Characteristics of discussions with personal friends tool. Discussions with personal and professional friends are opportunities that can encourage reflection. Several faculty members mentioned relying on a personal friend(s) for feedback on a problem they experienced and *defined themselves*. These personal friend(s) providing the feedback *did not witness the problem directly*. Because the faculty member is requesting feedback from a friend(s), the likelihood is only *one person is providing feedback*; it is not reciprocal.

The feedback among friends is not likely to be evaluative in nature; rather, *informative*, with no expectation to account for current and future practices. It is, most likely, informative for two reasons, lack of direct observation and lack of familiarity with the profession. The more friends used to facilitate the reflective process, the more opportunity for *different perspectives to exist*; in turn the possibility for *diversity to be present*. If the request for feedback is limited to one friend, less diversity would exist.

Because the problem is defined by the individual(s) requesting the feedback and it is not directly observed by the individual giving the feedback, *less accountability* to the problem exists. It is the author's view that feedback from friend(s) facilitates *more honest feedback* due not being directly involved with the problem, and a desire to help a friend, however it is difficult to prove unequivocally such characteristic is present. The faculty member may be able to *refer back* to the friend who provided the feedback, gaining clarification, which in turn could change the outcome of the reflection.

This tool is *external* in nature, meaning the tool being used, discussions with friend(s) is outside of the affiliated institution. The faculty may encounter a

positive and productive reflection or he/she may experience a *lack of commitment* to the problem from the friend and therefore the reflection is unproductive.

Tool 5: Self-Help Resources/Advice Books for New Faculty Members

Self-help resources/advice books was viewed by faculty members as a way to facilitate reflection. Although this tool was not referred to as often as the other tools, one faculty member specifically mentioned, "Reflection is thinking about the efficiency of one's own decision, policies, practices and behaviors. I have read resources such as Boice's book, *Advise for New Faculty Members,"* as a way to facilitate my reflection.

Characteristics of self-help/advice books for new faculty members tool. When faculty member(s) use self-help and advice books as tools to reflect, the *problem may be identified by the individual* faculty member searching for feedback. In other instances, the *problem materializes from reading the information in the self-help/advice book(s).* This tool is *limited to one source providing feedback* to another. Certainly, due to an overabundance of books available to access, *difference of opinion* and *diversity* is likely to emerge from the feedback. These books can also provide *specifics and examples* in relationship to the problem, aiding in the reflective process.

Self-help/advice books may serve as evaluative and/or informational in nature. *Less accountability* exists when using self-help/advice books, as the faculty member reading the book(s) to facilitate their reflection may choose to acknowledge and accept the feedback or ignore it. The use of this particular tool tends to be *private* in nature, as the faculty member reads the self-

help/advice book facilitating his/her reflection. The feedback is documented in writing which gives the faculty member the opportunity to refer back to the source(s) to confirm, clarify and/or search out possible alternatives to feedback. Finally, the tool is external in nature-outside the affiliated institution and, therefore, lacks a commitment to faculty member's specific problem.

Conclusions

The reflective process is served by the use of various tools, or cognitive memory aids, which promote reflection, and objectify and clarify professional experiences. This process allows the individual to activate right brain hemispheric processes of cognition, which are essential for changing behavior and for growing in professional capacity (Wlodarsky, 2018b).

Using this diverse collection of tools 1) student performance records/portfolios, 2) student focus groups/informal student feedback, 3) daily or weekly reports/comparative review of produced results overtime/faculty writing community, 4) discussions with friends, and 5) self-help/advice books for new faculty members to facilitate the reflective process can increase the likelihood that faculty members will have an improved capacity to be reflective within their respective field, ultimately improving professional practices for all involved.

Implications for Practice

How do these tools promote professional reflection and development among faculty members and other professionals? It is reasonable to think that all professionals could benefit from making use of these tools. If professionals do not use

tools to collect accurate and pertinent data, they will be limiting their reflective process. Professionals choosing to participate in the reflective process may want to consider the following suggestions:

- Tools help organize or structure our reflection process; not using such tools may result in a feeling of disorganization, chaos with our thoughts (cognition). These tools should be viewed as a resource, not a burden to the reflective process.
- What tool(s) are most appropriate to the problem-event of practice or the practice context? As each reflection is unique based on the problem (event), certain tools may be more suitable for certain contexts. For example, the use of student performance records or informal student feedback, as a means to reflect on one's writing for publication, is probably of limited value and therefore not appropriate. Typically, faculty members would look to self-help/advice books or a faculty writing community to provide feedback on the writing(s) they reflect upon, which is likely more appropriate. Another example would be a confrontation between faculty members.

Using tools involving student work, feedback would not be appropriate, nor helpful. Rather, a faculty member could initiate discussions with friends to reflect on the problem (event), in this case, the confrontation. This tool seems more appropriate considering the problem and would likely result in a more productive reflection.

- As mentioned previously, findings suggested that reflection can lead to changes in practice. Although, in some cases, the influence in terms of change may be minimal, reflection certainly facilitated some change. Often, change occurs in small increments, and can be more effective when approached in this manner. Although minimal, change due to reflection should not be devalued (Hoffman-Kipp, Artiles, & Lopez-Torres, 2003; Schön, 1987; Wlodarsky, 2018a).
- If change does not occur, a sense of awareness that may not have existed prior to working through the process is most likely to be present. Obviously, for a behavior change to take place, awareness through reflection needs to take place. Simply having awareness of a problem should not be diminished, as this awareness may lead to the realization of satisfaction with or tolerance of the existing problem (event) or may lead to future change in practice (Wlodarsky, 2018a).
- If awareness is not enough and/or change is minimal, consider using a different tool to facilitate the reflective process. Often professionals think they know what tool will best serve them and they may be mistaken.

Future Research

Although these tools have proven to be effective in facilitating reflection among study participants, they are not necessarily appropriate for every context in which reflection takes place. Future research should be conducted on the existence and effectiveness of other tools and their appropriateness to particular contexts. Another question to consider for future research is whether or not specific problems require certain types of data that can only come from certain reflective tools. A final question seems to be from a developmental

standpoint on reflection: does there appear to be a preference in the type of tool used based on the developmental stage for reflection at which one is currently operating? King and Kitchner's (1994) research on reflective judgment would be a suitable model to start with in relationship to reflective tools and developmental stages. These current findings and opportunities for future research clearly have practical implications for the professional development of university faculty members.

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