



## **Patterns of Teaching and Learning Styles in a Virtual School-Based Learning Action Cell**

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This study aims to determine the emerging teaching and learning style patterns in a school-based learning action cell. The SLAC was institutionalized to nurture the teaching-learning process and to enhance pedagogy in addressing school-related problems in primary education. Typically, the activities involve the group's leader acting as the specialist, and the members; identify the necessary competencies and practices to help improve student achievement. These collaborative learning sessions mimic the traditional teacher-learner classroom interaction as 'specialist-member interaction' and then harness their preferred styles. However, key challenges usually face the teachers, such as critical identification of actual classroom activities to be selected from and how to execute their agreed learning plans. Appending to the issue is the explosion of the Covid-19 pandemic, which affects all in-person educational activities, including the SLAC; it poses new challenges as it shifts towards virtual learning mode. To explore the style patterns, we adapted the Grasha-Riechmann integrated model, remodeled it, and fitted it into the SLAC context. The modified survey instruments were administered to 97 teachers randomly selected from 16 primary education institutions in the southern region of the Philippines. The specialists responded to the teaching styles inventory, while the SLAC members responded to the learning styles inventory. Exploratory factor analysis was used to determine the number of latent constructs from principal axis factoring and varimax rotation of factors with Kaiser normalization. The findings revealed a blended style facilitator-model-delegator-expert for the specialist and collaborative-independent styles for the members. This research generates constructs for teaching styles as patterns described as professional learning and ethical practice, leadership mentoring, self-directed learning, leadership, confidence delegation, and encouraging responsibility.

**Keywords:** school learning action cell, Grasha-Riechmann model, teaching styles, learning styles, exploratory factor analysis

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## INTRODUCTION

The Department of Education or DepEd in the Philippines mandates all K to 12 basic programs to effectuate continuing professional development through the school-based learning action cell or SLAC (i.e., DepEd Order No. 35, s. 2016). Its central goal anchors the principles of the professional learning community (PCL) to shape the teachers' knowledge, attitudes, and competencies in curriculum, instruction, and assessment in their respective classrooms. SLAC activities usually involve identifying the teaching-learning skills and undertaking the best pedagogical practices that could improve student achievement. The most probable outcome is enhanced institutional teaching-learning collaborative strategies.

The SLAC's structure involves a leader who may be the principal or school head, or any of the following: program coordinator, the facilitator of the sessions, the members who are the regular classroom teachers, and a specialized teacher (i.e., a specialist) who acts as the content expert and may come from the organization either internally or externally. However, in practice, the school head, the program head/coordinator, and those with higher ranks may take the specialist's role. Their professional skills capacitate the group members through coaching and immersing them in the content design appropriate for the desired learning environment, providing mentoring in establishing each group member's needs, and facilitating the overall success. Each SLAC comprises up to 15 individuals depending on the institutional structure. They collaborate by strenuous identification of actual classroom activities' needs and execution of their agreed learning plans. Such activities mimic the teacher-learner interaction in a typical classroom so that the specialists act as the *teachers* while the members are the *learners*. The specialists may harness diverse instructional strategies to address any learning situation in each session. They have some enthralling pervasive personal characteristics and classroom qualities, sometimes called teaching styles (TS). Grasha (1994) succinctly describes five TS as an expert, formal authority, personal model, facilitator, and delegator. These styles are their enduring preference as interaction occurs with diverse learners.

Similarly, SLAC members could provide highly varied learning success independent of their specialists. However, they also have specific behavior, personal experiences, and learning preferences. These are classroom qualities sometimes referred to as learning styles (LS). Grasha and Riechmann (1989) identified them as dependent, participant, independent, competitive, avoidant, and collaborative. These learning preferences imply two things. The first is on the adaptiveness of the TS. Some studies propose that teachers carefully select their styles and interweave them as if trying to harmonize with the learners' styles, e.g., Tulang (2021) and Dickinson et al. (2020). The accommodation of TS to certain conditions concerning essential issues like the prevalent classroom problem of individual differences requires a crucial and instantaneous resolution across the learners. Second, the SLAC members contribute significantly to the overall group's outcome. It supports the notion that teachers find wisdom from fellow educators. In a way, the core enabling mechanism for SLAC is the delivery of collaborative learning and problem-solving. The group's robust exchange of content knowledge and expertise

collectively constitutes a higher-order form of teacher-learner interaction; in this study, we refer to it as the *specialist-member interaction*.

As an enclosed policy, SLAC gives conformity with practical usage and beneficence. However, underlying issues and problems spare no one. The most surprising is a dearth of investigation on assessing the implementation, probably insights on benefits and challenges, see, e.g., Silva (2021), Vega (2019). Another issue is changing members' roles, which significantly affects execution and performance, as Binauhan (2019) reported. The study of Mendoza et al. (2017) identified some concerns regarding the need for an in-depth investigation of the collaborative efforts of the SLAC. For instance, there is difficulty in identifying the specialist from the school's pool of experts. There could be some favorable participation of members when the specialists come from their own, e.g., Bajar et al. (2021). Aside from those mentioned, there is an essential issue in the conduct of activities. When COVID-19 exploded, all educational activities shifted to distance learning, new health protocols, and restrictions, allowing virtual sessions to be carried out. Would it bring the same *specialist-member* interaction as the in-person interaction?

This research attempted to examine the group's collaborative efforts, ensuring the delivery of content (i.e., implementation) to the students. The patterns of styles across the group members could describe emerging distinctive characteristics specific to SLAC. Further, we posit that the patterns of TS and LS characterize SLAC's collaborative learning process. It is fitting to frame the underlying concept with Grasha-Riechmann's integrated model. This study adapted the instruments and determined the constructs that might emerge from the specialists' TS and the group members' LS. These indicators shape the *specialist-member* interaction that involves individual beliefs, personal preferences (i.e., TS and LS), engagement, social aspects, and educational background. The outcome of this study could give new insights and further improve institutional policies in succeeding other learning activities.

## **Review of Literature**

### **Teaching and Learning Styles**

Ford et al. (2016) adapted the Grasha-Riechmann model to investigate the 'quality improvement collaborative.' The study has found that several LS applies to multiple TS. Dash et al. (2020) utilized the same model and found that TS is in accord with small groups, self-directed learning, role modeling, and facilitation. Cimermanova (2018) adopted a similar model in a virtual learning environment and found that TS and LS did not affect achievement. Chetty, Handayani, et al. (2019) observed a mismatch between these styles; however, the results positively impacted students' LS. In contrast, TS of science teachers exhibit a "weak" relationship to their student's LS, as Mete & Bakir (2016) reported. The study by Coman et al. (2020) noted a striking high likelihood that TS gives unbalanced task allocation (i.e., too many tasks assigned to learners) for students in remote learning. Our observations from the previous literature suggest that TS and LS models revolved around a typical classroom scenario. However, there were studies conducted in other educational settings. For example, McCoy (2006) has applied

adult learning and TS in law enforcement education and training. Guadalajara, Palazon, et al. (2021) probed TS used in actual practice for medical education. Loch et al. (2018) have unveiled that TS in virtual training systems provides adaptive capabilities. The cited literature has the hallmarks of the flexibility of TS and LS models.

#### **School-based Learning Action Cell**

There were a few works of literature on SLAC. Binauhan (2019) posited that SLAC outcomes positively impact teachers and students. The group members in each session assisted in identifying content and pedagogy to address the 21st-century skills of the learners and recommended its continuous implementation, see, e.g., Silva (2021). Moreover, the outcomes of most sessions updated and improved pedagogical innovations and leadership skills, see, e.g., Floreno (2021). SLAC implementers called for constant review, monitoring, and evaluation, see Correos & Palar (2020), especially new restrictions amid the COVID-19 pandemic, in adherence to health protocols and other related regulations. SLAC sessions mimic the typical classroom so that the specialized teachers execute tasks through their preferred TS, see Grasha (1994). Their motivation influenced the development of collaborative strategies helpful in the session outcomes, see Ford, Robinson & Wise (2016). The members, as independent learners, used their preferred LS to complement the overall effect.

#### **Adaptation of the Grasha-Riechmann Teaching Styles Model**

SLAC specialists possess personal qualities as mentors or coaches that affect their learners' behavior. We define the following TS: a pedagogical content and knowledgeable *expert* assists the SLAC group members in improving their skills. The *formal authority* keeps status among the group members because of their role as head of the department/program or expertise in content knowledge from their advanced academic degrees; the members expect to receive constructive feedback and critique learning plans and goals expectations. The *personal model* has distinctive qualities of "teaching by personal example"; the members hope for critical guidance or direction to do things and emulate suggested learning and pedagogy approaches. The *facilitator* highlights self-directed learning and flexibility as the members wish to find discriminable options to accomplish tasks, such as proposals in the learning plans and functions. Being a resource person, the *delegator* considers the member's autonomy and independence in learning; the members may request consultations and professional advice.

#### **Adaptation of the Grasha-Riechmann Learning Styles Model**

The Grasha LS inventory categorically identifies learners' behavior preferences. Any SLAC member is an *avoidant* learner who is uninterested and does not like participating in the sessions. A *dependent* member wants to participate only in what each session requires; however, he supports the school authorities and heads of departments and displays little intellectual curiosity. A *participant* member is an "enjoyable and good citizen" and is ardent in carrying out tasks required in the sessions. *Independent* members have lots of confidence, like resolving activities for themselves and working with autonomy to accomplish tasks. A *competitor* member desires competition with

others aimed at rewards; they have high self-esteem and receive recognition for their accomplishments. A *collaborative* SLAC member adopts the ideals of collaborative learning through sharing and group cooperation.

## METHOD

### Survey Instrument modification and Validation

The self-inventories of the Grasha-Riechmann TS and LS were adapted and modified to determine the preferred styles and delineate the SLAC. The original TS instrument consists of 40 items with eight indicators per style: expert, formal authority, personal model, facilitator, and delegator. There were similar TS adaptations in the literature, such as the studies of Arbabisarjou et al. (2020), Dash et al. (2020), and Ford et al. (2016). The LS instrument comprises 60 items with ten indicators per style: avoidant, dependent, participant, independent, competitor, and collaborator. Similar research adapting LS includes the studies of Montenegro et al. (2020), Cimermanova (2018), and Ford et al. (2016).

The modified TS and LS items underwent critical review tailored to the SLAC's structure by carefully translating the indicators into their appropriate context. We adapted the framework of Kimberlin & Winterstein (2008) for the validity and reliability of measurement instruments. The reviewers of the survey instruments were content experts and school managers with extensive experience in the SLAC and teaching. They used a standardized institutional tool/instrument to evaluate the modified TS and LS survey questionnaire regarding content accuracy, appropriateness, and readability. After the review, there was a binding agreement to reduce the number of TS items to 5 questions per style. For LS, the total number of modified items is 21. For this purpose, replacing words or texts and thoughts was necessary. For example, a modified item for TS states, "I typically show SLAC members how to master course content." An example of an altered LS says, "Working with other SLAC members is something enjoyable." The respondents would answer an agreement or not with the survey instruments from the given questions. Their level of response is a scale from "strongly agree" to "strongly disagree." We assume that a correlation exists between each answer to every question to the respondent's preferred style. Each question is given the same weight in the Scoring posted in Table 1. The demographic variables are gender, position or rank, age, number of years in the service, and educational qualifications.

Table 1

The scoring used in the Grasha-Riechmann teaching styles and learning styles inventories

Score	Scale	Qualitative Description
5	4.21 – 5.00	Strongly Agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Undecided
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly Disagree

### **Sampling and Survey Administration**

The members of the SLAC comprise two main groups: the specialist subgroup has the following roles in their respective schools the principal or the school head, program head, facilitator, specialized teacher having higher ranks in the institution, or resource person. They are the ones who responded to the TS questionnaire. The other subgroup comprises members whose roles do not belong to the specialist subgroup but as regular classroom teachers; they have answered to the LS self-inventory.

The survey respondents come from sixteen (16) randomly selected DepEd schools in the southern region of the Philippines, composed of 35 individuals who belong to the specialist group and 62 individuals who belong to the members' group. There was a proper request from DepEd authorities for permission to conduct the study and the inclusion of the subject respondents. There was also a prior invitation of the respondents to participate in this study via social media in adherence to pandemic protocols. After the approval, we commenced the survey administration via online platforms through emails and social media using google forms. This study's researchers strictly adhere to ethical standards and data privacy laws. We practice these standards in adherence to the policies of our respective institutions.

### **Exploratory Factor Analysis**

This study intends to explore latent constructs from the TS and LS inventories and identify the common factors that explain their structure as captured from their indicators, e.g., Watkins (2018) and Canivez et al. (2018). We used the statistical software SPSS v.25 to perform the exploratory factor analysis (EFA). In terms of the sample size issue, we have literature to address it. Jolliffe & Cadima (2016) underscore that EFA is appropriate for small sample sizes when there are fewer observed entities than variables. Fabrigar et al. (2010) stress that the determination of sample size depends on one's perspective and goals. De Winter et al. (2009) point out that large sample sizes give plausible results; however, if factors are well defined or have a limited number, EFA with a small size will gratify a reliable solution. The minimum sample size depends on communalities values, factor loadings, the number of indicators per component, and the number of factors. We considered the results from De Winter et al. (2009) because our adapted model did not deviate from a simple structure. These are the following measures: Bartlett's sphericity test determines the correlation matrix's factorability. The Kaiser-Meyer-Olkin (KMO) determines the sampling adequacy. The methodology for the extraction was principal axis factoring, as recommended by Williams, Onsman, and Brown (2010), and the rotation of factors uses the Varimax with Kaiser normalization to obtain the orthogonal results to clarify the relationship among factors, see Allen (2017).

## **FINDINGS**

### **Respondents' Demographics**

Table 2 summarizes the demographics with the following observations: females dominate the SLAC composition (i.e., about 73%); the specialists' group had at least 82.8% completed their master's degrees, and 17.1% had Ph.D. degrees, where 45.7%

had served for at least 20 years in teaching; both groups have participated in training from institutional to international levels. The results suggest a unique profile for the experts' qualifications and the group members in terms of education, teaching experience, and relevant training as they participate in this research.

Table 2  
Respondents' demographics

	Subgroup	
	Specialist	Members
<i>N</i> = 97	35	62
Gender		
Male	6	20
Female	29	42
Age		
20–40	11	38
41–up	22	24
Educational Level		
Bachelor's degree	2	21
Earned units in MA	4	23
Masters degree	19	11
Earned units in PhD	4	6
Ph.D. degree	6	1
Position/Rank		
School Head	1	-
Head Teacher	6	-
Master Teacher	20	-
Others (Teacher 1-III)	8	62
No. of Years in Service		
0–19	19	53
20–39	15	9
40–up	1	-
Role in SLAC		
Leader/School Head	4	-
ProgramHead/Facilitator	30	-
Specialist/Expert/Res.Per	1	-
Recorder/Member		62
Training Participated		
Institutional	35	58
Regional/National	35	41
International	7	12

### Teaching Styles of SLAC Specialists

The benefits of google forms do not allow blank dynamic fields, so the results did not prompt missing data points. The KMO index was 0.714, indicating that the correlation matrix is factorable and considered suitable for EFA. See, e.g., Watkins (2018), Canivez et al. (2018), and Lloret et al. (2017). Kaiser (1974) provides a descriptor for 0.70s as "middling." The results of Bartlett's test indicated significance having the chi-squared

statistic  $\chi^2(231) = 599.612, p < 0.001$ . We have set the number of factors to extract to 5; the scree plot confirms retaining them. The values for the extracted communalities range from 0.409 to 0.828. The five extracted components explained 73.40% of the variance. There were 22 items on the desired components with factor loadings within the range of 0.438 to 0.888, as presented in Table 3. The Cronbach's alpha of the items was 0.930.

Table 3  
Factor loadings of teaching styles

Item	Factor-1	Factor-2	Factor-3	Factor-4	Factor-5
39	0.888				
34	0.788				
32	0.726				
40	0.687				
37	0.571				
13	0.438				
26		0.694			
20		0.644			
21		0.607			
23		0.488			
38		0.437			
11			0.755		
15			0.701		
17			0.647		
16			0.526		
31				0.715	
35				0.645	
28				0.625	
29				0.600	
36				0.478	
27					0.817
24					0.695

The results have posed that the items loaded in the components are in the form of blended TS. Factor 1 combines facilitator-personal model-delegator styles, factor 2 combines the expert-delegator-personal model, and factor 3 blends expert-authority-delegator. The fourth factor combines the expert-delegator-personal model styles, and the fifth component is the combination of authority-facilitator. The emerging pattern may infer a blend of styles in the order of the facilitator-delegator-authority-personal model. The descriptive statistics of the 5 components are respectively  $M=4.53, SD=0.580; M=4.36, SD=0.731; M=4.27, SD=0.718$ , and  $M=3.97, SD=0.877$ .

#### Learning Styles of SLAC Members

The KMO index was 0.722, suggesting that the correlation matrix is factorable and suitable for EFA. The results of Bartlett's test give the measures  $\chi^2(210) = 717.338, p < 0.001$ . The values for the extracted communalities range from 0.513 to 0.934. The six extracted components explained 77.90% of the variance. The factor loadings in the

range values from 0.440 to 0.890 from a total of 21 indicators, as posted in Table 4. The Cronbach's alpha of the items was 0.821.

Table 4  
Factor loadings of teaching styles

Item	Factor-1	Factor-2	Factor-3	Factor-4	Factor-5	Factor-6
21	0.843					
3	0.814					
58	0.812					
33	0.765					
15	0.760					
31	0.702					
9	0.695					
51	0.655					
40	0.513					
7		0.745				
59		0.637				
60		0.623				
8			0.804			
30			0.630			
54			0.440			
49				0.909		
1				0.613		
5					0.890	
35					0.818	
22						0.824
32						0.549

The items loaded in the components imply blending in LS as well. Factor 1 is the collaborator-independent, factor 2 is the pair participant-competitor, and factor 3 is the pair participant-avoidant. The fourth factor is strictly singleton on independent LS, as with the fifth factor with competitive style. Factor 6 is likewise the pair avoidant and dependent. The LS pattern is likely on the blending of collaborative-participative-dependent-independent styles. Their descriptive statistics are respectively  $M=4.26$ ,  $SD=0.671$ ;  $M=3.77$ ,  $SD=0.919$ ;  $M=4.08$ ,  $SD=0.774$ , and  $M=3.97$ ,  $SD=0.850$ .

## DISCUSSION

This research unveils the following constructs, and the description of the five factors of the TS was on the review of related literature. The first factor depicts the TS as "professional learning and ethical practice." The Interstate Teacher Assessment and Support Consortium (InTASC) sets nine standards in their teacher's portfolios. One of these describes the teacher engagement in ongoing professional practice and reflection (e.g., personal model), where students' outputs receive constant feedback and encouragement (e.g., facilitating and delegating) as a form of teacher practice, see, e.g. Liu et al. (2020). In this study's survey questionnaire, the keywords of the five indicators were the phrases: support and encouragement, clearly defined expectations, can make choices but guides the 'how and what. The second factor describes the style as

"leadership mentoring." Jamison et al. (2020) utilized the framework of educational mentoring. A personal modeling style develops a mentoring relationship; Delegator-exert styles develop leadership experience by engaging in problem-solving or task-solving activities through an expertise style. The six indicators of this factor have the phrases: standards and expectations, expertise is used to resolve disagreements, thinking, and independent work. The third factor describes TS as "self-directed learning." The four indicators from our survey questionnaire support: the design of the self-directed learning experience (e.g., expert-delegator). Self-directed learning, or SDL describes how the teacher formulates appropriate goals, strategies, and outcomes with or without others' assistance (Knowles, 1975); most recent literature involving SDL includes Sukardjo & Salam (2020) and Salleh et al. (2019). TS's fourth factor is "leadership and confidence delegation." The five items in the questionnaire have the keywords: delegates tasks and responsibilities (e.g., leadership delegation), solicit members' advice, and availability of time. According to Daskal (2017), self-confidence is an integral part of leadership because it brings positive outcomes on personal and professional goals as the leader takes the necessary risks to undertake them. The fifth factor describes the teacher as "encouraging responsibility," which has two indicators in the questionnaire: taking the initiative and responsibility. These TS patterns accede to the learning theories of Vygotsky; that is, TS conforms to the principles underlying PCL (Schlosser et al., 2021) and Piaget's, that is, the construction of knowledge. We may add a content-based instruction model, the combination of face-to-face and virtual learning with support technology, to create the most efficient learning environment, e.g., Ringler et al. (2018) and Yu & Du (2019).

Similarly, factor analysis generated five constructs from the SLAC member's LS. As shown in Table 3, the LS preference is primarily collaborator-independent (i.e., Factor 1); some are participant-competitor, independent, and the pair avoidant-dependent. The supporting nine indicators of the items have the phrases: good climate, give-take, expert-dependent, and sharing. The second factor for LS containing two indicators is the "sharing of ideas." The third factor includes three indicators and describes "active engagement in tasks." The fourth factor has two indicators: "preference for independent work." The fifth factor, which has two indicators, is the sole "competitiveness." The sixth factor is "avoidance and dependency," which contains two indicators.

Indeed, it is evident that the LS draws a primary preference for collaborative and active learning: group discussions and self-discovery. However, there could be several factors involved in the choice of styles. Greer (2017) spells out elements for collaboration through collective identity and relationships that bring value to communities. Many studies support the collaboration method, e.g., Rybnicek & Konigsgruber (2019) and Mills et al. (2021). For the specialists, a blend of styles best accommodates LS preferences by reinforcing creative learning activities at any given session, including facilitating interaction and other means to explore information and spring a warm climate. As collaborators, SLAC members infuse collaborative learning but later work independently to accomplish their assigned tasks (e.g., self-directed learners). As participant-competitor, they are "law-abiding citizens" with high self-esteem and aim for rewards. They also tend to participate "for compliance" in the sessions. From these

insights, we could evoke that SLAC implementers should acknowledge learners' diversity and recognize their worth and abilities. For instance, coaching in small groups ensures mentoring opportunities such as peer-to-peer feedback (Schlosser et al., 2021); there is also the dialogic approach, that is, engaging the members in reflection and action (Carrion et al., 2020). Indeed, the fundamental principles outlined in D.O. 35, s. 2016 validate in this study.

Furthermore, the results have uncovered how TS and LS reasonably complement. When members engage in collaborative learning, the specialists provide support and encouragement and incite strong relationships (Lin et al., 2016). Since SLAC members are adult learners, they are more participative, so they need a facilitator style that brings them to active learning. Adult learners are more engaging, willing to participate, and could be more knowledgeable in their discussions and arguments (Brunton, J., Buckley, F., 2020). However, what is phenomenal, is that members also like to be competitors.

### **Practical Implications**

As a revisit to D.O. 35, s. 2016, its goal was to assist classroom teachers in nourishing their pedagogical skills and knowledge conjointly with their attitude. With a substantial presence of teacher-learner collaboration through active participation in vigorous and cordial discussions, the goals and objectives of each session are realized (e.g., Goddard et al. (2015); Tulang, (2021)). We have featured this earlier as *specialist-member interaction*. As revealed in this study, collaboration is the SLAC's primary learning strategy in concordance with its learning delivery components.

Adult learners in the SLAC context may adopt a distinctive interaction. Pardino et al. (2018) stress that the best pedagogical approach (i.e., teaching style) characterizes positive and consistent teacher-student communication and is more applicable to virtual platforms. Following the government's health protocols, nearly all group communications are non-face-to-face. However, nowadays, social media platforms and internet connections are readily accessible even though there are still impending issues regarding the available support of school facilities. So, communication did not stop. Group sessions continue to conduct virtually. Everyone still transmits and receives shared information. The results confirm as the members reported in item 58, "I find the notes from the SLAC experts very helpful." It implies a positive impression from the group members. It matches the specialists' preference regarding the group's communication, as item 40 "assumes the role of a resource person whenever assistance is needed." It implies that this interaction is still effective even in the conduct of virtual sessions. Hence, a match between TS and LS should be critical for effective learning processes (Ford et al., 2016).

Furthermore, TS and LS frameworks have other real-life applications. Aside from the Grasha-Riechmann inventories, other models are potentially valuable for any similar educational setting. We have already mentioned the study of Ford et al. (2016), which captured the preferred styles of coaches, change leaders, and executive sponsors. Those earlier studies highlight the notion of how relevant and essential to explore TS and LS.

It could characterize the overall structure of any learning process. Indeed, our investigation discloses the patterns of these styles in a virtual school learning action cell.

### **LIMITATIONS**

This study also has limitations. The first is capturing more respondents as possible. We relied heavily on their completed responses to our invitation and letting them answer through the google forms sent via their email and social media. Moreover, pandemic health protocols prevented us from collecting data face-to-face. It is difficult to generalize the overall patterns of style, especially when the sample size is small, although we have adopted the insights of De Winter et al. (2009). There is a need to consider similar situations in research planning and agenda policies. Second, further research is needed to closely examine the consistency of results when the sample size is improved, extending a broader scope of respondents in varied contexts.

### **CONCLUSION AND RECOMMENDATIONS**

This study investigated the patterns of TS and LS in a virtual SLAC. It was framed with the Grasha-Reichmann integrated model. Using the exploratory factor analysis to generate constructs, the findings unpack five factors of TS and six factors for LS. The results revealed a blend of facilitator-model-delegator-expert for TS that stimulates collaborative-independent learning through coaching. The patterns of TS have the following descriptions: (1) professional learning and ethical practice, (2) leadership mentoring, (3) self-directed learning, (4) leadership and confidence delegation, and (5) encouraging responsibility. The patterns of LS have the following descriptions: (1) collaborative-active learners, (2) sharing ideas, (3) active engagement in tasks, (4) preference for independent work, (5) competitiveness, and (6) avoidance and dependency. These patterns demonstrate a successful *specialist-member* SLAC interaction. Likewise, it provides practical implications that a perfect match between these styles could work best when collaborative learning strategies are productive and there is consistency in communication among all members. Online sessions provide multiple platforms and convenience in delivering vital information.

This study recommends exploring and utilizing TS-LS models outside of an educational setting, for example, in virtual training sessions. We believe that the expected learning outcomes could have similar characteristics. We posit that there is a high learning success if a correlation exists such that the TS selected suitably fits LS. With an adequate coaching intervention that could match perfectly between these styles, we further recommend an in-depth investigation of school-based collaborative strategies and best practices to enhance implementation and facilitation; translating future results into an institutional policy governing SLAC is essential.

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