RUNNING HEAD: Factor structure of ICAI

Comparison of Factor Structure and Conceptual Structure of Intern Classroom Assessment Instrument

J. Kyle Roberts
Baylor College of Medicine

Jon J. Denton, Trina J. Davis, Ben L. Smith, Lynn Beason, and B. Diane Graham
Texas A&M University

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Abstract

This research compares the conceptual and empirically determined domains of a classroom evaluation instrument that university supervisors complete on candidates. The instrument permits 77 numerical ratings grouped in seven conceptual domains. A factor analysis has been conducted using 1200 records of classroom evaluations obtained from applying this instrument.

Viewing the preparation of teachers as the initial step of a career long professional development program for teachers is logical, but it is not the conventional view held by teacher educators and professional development specialists. We have invested over three years of continuous effort and resources in developing a teacher preparation program that incorporates an on-line delivery system and have come to view this delivery system as holding significant promise for the continuing education and formal development of teachers following their initial certification and entry into the profession. The eLearning attributes of accessing reliable and valid multimedia resources 24/7 from a personal workstation are powerful influences for changing how professional development experiences are envisioned. However, in the arena of eLearning, it is generally accepted that professional development efforts in public schools have not "kept pace with the rapid changes in the quality and quantity of information technology" (Denton, Davis, Strader, Durbin, & Wang, 2004; Moursund & Bielefeldt, 1999).

School policy makers wanting to improve teaching that results in greater student performance nearly always consider teacher professional development as a central component in their school improvement plans (Guskey, 2002). However, it is likely these professional development initiatives will not yield quick or consistent results due to unexamined assumptions regarding investment levels for professional development, and an evidence base that the professional development initiative worked. These ideas center on the following questions raised by Knapp (2003). What is the cost of a successful professional development initiative? What counts as successful for the proposed level of investment? Because cost containment is nearly always an issue with educational initiatives, professional development planners often resort to the often-used practice of providing single workshops on topics selected without faculty input. The professional development literature has consistently indicated this type of intervention has practically no chance of improving teaching and learning strategies (Hargreaves & Fullan, 1992; Joyce & Showers, 2002). These limitations represent "operational policy issues" that result in no change occurring in the classroom following the workshop. If educators begin to access the Internet for ideas to inform their professional practice, eLearning may change the "single experience" notion for educator professional development into "continuing career long experiences."

Perspectives

Our experiences (Denton, Davis, Smith, Strader, Clark & Wang, 2004-05) with technology professional development for teacher educators and classroom teachers are consistent with the literature (Garet, Porter, Desimone, Birman & Yoon, 2001; Joyce & Showers, 2002; Loucks-Horsley, Love, Stiles, Mundry, & Hewson, 2003) regarding professional development experiences that emphasize academic subject matter (content), provide opportunities for "hands-on" activities (active learning), are integrated with ongoing classroom operations (coherence), and provide many development experiences for an extended period of time are more likely to produce desired knowledge and skill changes. Joyce and Showers (2002) contend that at least 12 sessions are necessary to impact classroom integration. Similarly, recommendations from a national survey on the preparation and qualifications of public school teachers by Lewis, Parsad, Carey, Bartfai, Farris, & Smerdon (1999) are consistent with the program timeline and activities we have undertaken, that include, collaborative activities with common planning times, regularly scheduled meeting times, establishing formal mentoring relationships, and networking with other teaching candidates outside a single school (Denton, Davis, Smith, Strader, Clark, & Wang, 2005).

This paper addresses the development and validation of a classroom observation scale used during the final field experience of interns in an online pre-service professional development program. The scale is used to assess whether the intern provides experiences that emphasize academic subject matter (content), provide "hands-on" activities (active learning) that are integrated with ongoing classroom operations (coherence) for an extended period of time.

Program Description

The *Accelerate Online/OPTIONS* program was established to provide a flexible alternative certification program for life science, physical science, and mathematics (grades 8-12) that has three features setting it apart from other alternative certification programs offered in Texas. First, it is offered through a College of Education and Human Development as a continuing education program that does NOT yield student credit hours to the university, thus reducing costs (no tuition expenses) for candidates. Second, because the pedagogy content associated with state licensure is accessible, 24/7 as an on-line experience, certification can be completed by a baccalaureate graduate, graduate student or science/engineering professional in 12-18 months. Third, the program has been developed from a partnership between a College of Education and Human Development and a College of Medicine that is providing a talent pool of candidates with strong academic backgrounds in science and mathematics.

The curricular elements of the *Accelerate Online/OPTIONS* program consist of an On-line curriculum, an early field-based experience and a year long internship. The Online Curriculum consists of 35 online modules with major topics identified for Pedagogy and Professional Responsibilities in grades 8-12. These instructional modules have been developed to engage the candidate with knowledge and skills identified as necessary for a beginning teacher by the state standards, that is, the State Board of Educator Certification Pedagogy and Professional Responsibilities Standards (SBEC, 2002). These online modules are accessed from the eEmpowerment Zone platform. The eEmpowerment Zone, is a dynamic, on-demand delivery platform developed in-house that enables cohorts/communities of teaching candidates to access instructional modules, as well as integrated resources and tools that support teaching and learning, supervision, resource evaluation and collaboration. By organizing instructional web-based modules, electronic portfolios, resources and tools into an integrated system, teaching candidates can seamlessly complete the online and field-components of the program, while receiving extensive support from university supervisors, mentor teachers, fellow students and program staff. In addition, the backend eZone database houses extensive performance data on all students related to online instructional module assessments, classroom observations, and ePortfolio assessments.

The second program component, the Early Field Based Experience consists of a 40 clock-hour supervised teaching field experience in a secondary school while the candidate is completing the online modules. This field component has been designed for the candidate to experience a gradual induction into the teaching environment through observing quality teaching and gaining insights about the school's organizational culture. Candidates are encouraged to complete this experience over four consecutive weeks, spending 2 hours/day during the same time frame, Monday through Friday.

The final program component is the paid internship where the candidate is supported by a trained mentor and a university supervisor who will guide, observe and provide constructive feedback to the intern during her[1] year-long development as a beginning teacher. Continuing

supports are offered to a former candidate after she completes initial teacher certification. These supports include: continued communications with program staff, continued access to the former intern's ePortfolio resource, and the availability of a mentor teacher for the former intern, if she continues to be employed in the same school where she taught during her internship.

Evaluating Factor Structure

Much of the focus of the evaluation of this program deals with the effectiveness of the Accelerate Online program in producing quality educators, ready to enter the teaching arena with a necessary skill set. In order to look at this, we decided to use the same instrument used in evaluating pre-service teachers graduating from the traditional teacher preparation program. This instrument provided in the Appendix is an evaluation form used by the mentor and supervisor to assess the progress made by the teacher. It consists of 77 items measured on seven domains. These domains and items are based on the Professional Development and Appraisal System (PDAS) recommended by the State Board for Educator Certification for use by school administrators in assessing the instructional actions and processes applied by classroom teachers. Historically much if the empirical support for these domains can be traced to the process-product research conducted over three decades ago (Gage, 1972; Good & Brophy 1987; Peterson & Walberg, 1979; Stallings & Kowalski , 1990).

The instrument is scored as a Likert-type instrument with four anchors of "needs significant improvement", "growth in progress", "proficient", and "exceeds expectations" which are scored "1" to "4", respectively. Some of the domains (factors) were comprised of relatively small numbers of items and were subsequently not included in the analysis (Domains VI and VII).

Modern conceptualizations of factor analysis include both exploratory and confirmatory methods, as well as the hybrid invoking exploratory factor extraction followed by confirmatory rotation (Thompson, 1992). Exploratory factor analysis (EFA) is used to "identify the factor structure or model for a set of variables" (Bandalos, 1996, p. 389). As its name implies, EFA is an exploratory method used to generate theory; researchers use EFA to search for the smaller set of k latent factors to represent the larger set of j variables. As Pedhazur and Schmelkin (1991) noted, "of the various approaches to studying the internal structure of a set of variables or indicators, probably the most useful is some variant of factor analysis" (p. 66).

On the other hand, confirmatory factor analysis (CFA) is used to test theory when the analyst has sufficiently strong rationale regarding what factors should be in the data and what variables should define each factor. A fundamental and critically important difference between EFA and CFA is that results of an EFA are a sole function of the "mechanics and mathematics of the method" (Kieffer, 1999, p. 77). EFA does not consider a priori theory held by the researcher (Daniel, 1989). CFA, on the other hand, is driven by theoretical expectations regarding the structure of the data.

As Gorsuch (1983) noted, "Whereas the former [EFA] simply finds those factors that best reproduce the variables under the maximum likelihood conditions, the latter [CFA] tests specific hypothesis regarding the nature of the factors" (p. 129). The reader is referred to Gorsuch (1983), Stevens (1996), and Tabachnick and Fidell (1996) for extensive treatments of these approaches. The present paper will present a heuristic example of a CFA analysis and provide interpretation as to both model fit and model specification. For these reasons, we chose to use CFA to test the factor structure of the evaluation instrument.

In this paper, four separate models were considered for analysis. Model 5 is the model that was hypothesized by the original makers of this instrument, which includes all items across all five domains. These five domains are:

- Student participation in the learning process
- Learner-centered instruction
- Evaluation and feedback
- Management of the student discipline, instructional strategies, time and materials
- Professional competencies

Two additional factors are contained in the instrument (professional development and compliance with requirements), however we viewed these domains as not explicit to instruction. Coupled with the fact that each of these domains is only described by two items, we decided to not use these domains (see Appendix).

Insert Table 1 about here

Table 1 shows the fit statistics for the five different hypothesized models. Model 5 is the model hypothesized by the original authors of the instrument. As can be seen in this table, this model had the worst fit to the data. From this model, we then hypothesized four other competing models. Model 1 just includes the first two domains. Model 2 includes the first three domains. Model 3 includes the first four domains. Model 4, and the model we adopted given this dataset, is similar to the Model 3 except that the following items have been eliminated: d2c3, d2c4, d2c10, d3b1, d4a1, d4a2, d4a4, d4b3, and d4b5. Each of the items in these models corresponds with the domain and sub-domain from which they are derived. For example, d2c3 would be item number 3 from Domain II, sub-domain C. The standardized estimates from the fit models for each of the five models are given in Table 2.

Insert Table 2 about here

Table 3 shows both the pattern and structure coefficients for Model 4. In all five of the models, each of the latent factors were allowed to correlate with each other, much like the solution derived from an oblique factor rotation solution in an exploratory factor analysis. This made sense with this instrument given that each of the domains looks at some aspect of teacher practice. Although not all of these correlations are presented, Table 4 shows the latent factor correlations from Model 4. As can be seen in this table, the correlations among these domains are quite high and it could be that a single factor more correctly describes the model. We tested this assumption also, but found that model fit indices (CFI = .828, NFI = .800, PCFI = .754, RMSEA = .070) did not indicate a better model fit to the data than did Model 4.

Insert Tables 3 and 4 about here

Although it would have seemed appropriate for Model 5 to provide a better fit to the data than Model 4, Table 1 showed that this just wasn't the case. We therefore hypothesized that this model could indeed be a structural model in which the fifth domain actually provides information about the other four domains as a higher-order factor. Since Model 4 provides good factor structure, and the fifth factor has strong reliability estimates, merging these two measurement models into a structural model seems warranted. In this case, the correlations

among the four items are discarded and a path is drawn from the fifth latent factor to the other four latent factors. Before testing this model, we computed the reliability estimates of the first four factors and then of the fifth factor (personal competencies). These can be seen in Table 5. With the possible exception of the first factor, the alpha coefficients are quite large. Since the first factor is only comprised of three variables, it is not surprising that these estimates are small. The results of the structural model can be seen in Table 6.

Insert Tables 5 and 6 about here

The interesting thing to note in Table 6 is the strength of the standardized weights that describe the path from the latent factor "professional competencies" to the other four latent factors (.923, .892, .896, and .933, respectively). These values are quite large, considering that when the fifth factor was included in Model 5 it did not provide improvement for data fit to the model. These large values might lead to believe that this fifth factor is actually providing some information about the other four.

In examining each of the items from the fifth factor, we see that they make up a description of the professional competencies of the teacher in the areas of communication, relationships, and responsibilities. This controlling factor might possibly be the influential dimension that controls the other areas of teacher competencies. Put simply, knowing a teacher's professional competencies could be part of the key to understanding their effectiveness as a teacher professional.

Conclusion

Although this study is still in its early stages, the findings concerning the influential nature of professional competencies and its influence on other domains could prove extremely useful in future teacher training. The hidden message inside this paper might be, "Make sure the teacher is professionally competent, and professional instruction will follow." It should be noted, however, that the correlational nature of this study cannot be interpreted as a causal inference into how competent teachers are formed. It is hoped, however, that this study will help provide a little more information into the making of a competent, professional teacher.

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Table 1
Model Fit Statistics

	Model 1	Model 2	Model 3	Model 4	Model 5
CFI	.861	.857	.826	.856	.747
NFI	.842	.833	.795	.828	.710
PCFI	.736	.757	.761	.775	.703
RMSEA	.078	.071	.067	.064	.070

Table 2
Standardized Estimates for Weights for the Five Hypothesized Models

Path			Model 1 Std. Est	Model 2 Std. Est	Model 3 Std. Est	Model 4 Std. Est	Model 5 Std. Est
d1a1	<---	d1	0.734	0.735	0.743	0.740	0.746
d1a2	<---	d1	0.670	0.669	0.662	0.663	0.667
d1a3	<---	d1	0.643	0.642	0.640	0.642	0.633
d2a1	<---	d2	0.545	0.538	0.534	0.532	0.537
d2a2	<---	d2	0.694	0.699	0.694	0.693	0.694
d2a3	<---	d2	0.724	0.727	0.721	0.724	0.720
d2a4	<---	d2	0.643	0.646	0.642	0.641	0.638
d2a5	<---	d2	0.645	0.639	0.635	0.635	0.638
d2a6	<---	d2	0.656	0.652	0.649	0.645	0.650
d2a7	<---	d2	0.634	0.636	0.636	0.622	0.642
d2b1	<---	d2	0.597	0.592	0.601	0.598	0.604
d2b2	<---	d2	0.672	0.672	0.673	0.673	0.674
d2b3	<---	d2	0.711	0.711	0.716	0.714	0.717
d2b4	<---	d2	0.748	0.751	0.755	0.750	0.757
d2b5	<---	d2	0.739	0.735	0.738	0.735	0.737
d2b6	<---	d2	0.767	0.768	0.773	0.775	0.770
d2c1	<---	d2	0.700	0.697	0.703	0.708	0.701
d2c2	<---	d2	0.606	0.605	0.607	0.610	0.610
d2c3	<---	d2	0.687	0.685	0.690		0.697
d2c4	<---	d2	0.668	0.670	0.672		0.673
d2c5	<---	d2	0.607	0.603	0.596	0.600	0.593
d2c6	<---	d2	0.515	0.511	0.509	0.519	0.507
d2c7	<---	d2	0.626	0.625	0.618	0.626	0.616
d2c8	<---	d2	0.481	0.484	0.480	0.486	0.479
d2c9	<---	d2	0.533	0.537	0.535	0.541	0.532
d2c10	<---	d2	0.713	0.717	0.714		0.709
d2c11	<---	d2	0.612	0.622	0.620	0.628	0.616
d3a1	<---	d3		0.722	0.731	0.735	0.729
d3a2	<---	d3		0.777	0.779	0.786	0.776
d3a3	<---	d3		0.808	0.802	0.808	0.801
d3a4	<---	d3		0.761	0.757	0.763	0.756
d3a5	<---	d3		0.664	0.663	0.669	0.661
d3a6	<---	d3		0.702	0.698	0.700	0.694
d3b1	<---	d3		0.581	0.579		0.587
d3b2	<---	d3		0.619	0.626	0.600	0.636
d4a1	<---	d4			0.682		0.681
d4a2	<---	d4			0.790		0.787
d4a3	<---	d4			0.707	0.694	0.702
d4a4	<---	d4			0.745		0.741
d4a5	<---	d4			0.736	0.721	0.743
d4a6	<---	d4			0.646	0.649	0.645
d4b1	<---	d4			0.741	0.733	0.740
d4b2	<---	d4			0.556	0.553	0.567
d4b3	<---	d4			0.674		0.674
d4b4	<---	d4			0.715	0.711	0.719
d4b5	<---	d4			0.616		0.629
d4b6	<---	d4			0.525	0.514	0.528

d4b7	<---	d4	0.698	0.695	0.701
d4c1	<---	d4	0.800	0.821	0.797
d4c2	<---	d4	0.786	0.797	0.780
d4c3	<---	d4	0.731	0.737	0.725
d4c4	<---	d4	0.748	0.758	0.750
d4c5	<---	d4	0.632	0.637	0.634
d5a1	<---	d5			0.612
d5a2	<---	d5			0.639
d5a3	<---	d5			0.656
d5a4	<---	d5			0.619
d5a5	<---	d5			0.541
d5a6	<---	d5			0.651
d5a7	<---	d5			0.662
d5a8	<---	d5			0.627
d5a9	<---	d5			0.568
d5b1	<---	d5			0.690
d5b2	<---	d5			0.697
d5b3	<---	d5			0.709
d5b4	<---	d5			0.724
d5b5	<---	d5			0.749
d5b6	<---	d5			0.344
d5c1	<---	d5			0.401
d5c2	<---	d5			0.729
d5c3	<---	d5			0.700
d5c4	<---	d5			0.692
d5c5	<---	d5			0.587

Table 3
Pattern and Structure Coefficients for Model 4

	Factor 1		Factor 2		Factor 3		Factor 4	
	Pattern	Structure	Pattern	Structure	Pattern	Structure	Pattern	Structure
d1a1	0.740	0.740		0.722		0.657		0.658
d1a2	0.663	0.663		0.647		0.589		0.590
d1a3	0.642	0.642		0.626		0.570		0.570
d2a1		0.518	0.532	0.532		0.490		0.477
d2a2		0.676	0.693	0.693		0.639		0.623
d2a3		0.706	0.724	0.724		0.668		0.650
d2a4		0.625	0.641	0.641		0.591		0.575
d2a5		0.620	0.635	0.635		0.586		0.570
d2a6		0.629	0.645	0.645		0.595		0.579
d2a7		0.606	0.622	0.622		0.573		0.558
d2b1		0.583	0.598	0.598		0.551		0.537
d2b2		0.657	0.673	0.673		0.621		0.605
d2b3		0.696	0.714	0.714		0.659		0.641
d2b4		0.732	0.750	0.750		0.692		0.674
d2b5		0.717	0.735	0.735		0.678		0.660
d2b6		0.755	0.775	0.775		0.714		0.695
d2c1		0.690	0.708	0.708		0.652		0.635
d2c2		0.594	0.610	0.610		0.562		0.547
d2c5		0.585	0.600	0.600		0.553		0.538
d2c6		0.506	0.519	0.519		0.478		0.465
d2c7		0.611	0.626	0.626		0.577		0.562
d2c8		0.474	0.486	0.486		0.448		0.436
d2c9		0.527	0.541	0.541		0.499		0.485
d2c11		0.613	0.628	0.628		0.579		0.564
d3a1		0.652		0.678	0.735	0.735		0.651
d3a2		0.697		0.724	0.786	0.786		0.695
d3a3		0.717		0.745	0.808	0.808		0.715
d3a4		0.677		0.703	0.763	0.763		0.675
d3a5		0.594		0.617	0.669	0.669		0.592
d3a6		0.621		0.645	0.700	0.700		0.62
d3b2		0.533		0.553	0.600	0.600		0.531
d4a3		0.617		0.623		0.614	0.694	0.694
d4a5		0.641		0.647		0.638	0.721	0.721
d4a6		0.576		0.582		0.574	0.649	0.649
d4b1		0.652		0.658		0.649	0.733	0.733
d4b2		0.491		0.496		0.489	0.553	0.553
d4b4		0.631		0.638		0.629	0.711	0.711
d4b6		0.457		0.462		0.455	0.514	0.514
d4b7		0.617		0.624		0.615	0.695	0.695
d4c1		0.729		0.737		0.726	0.637	0.821
d4c2		0.708		0.715		0.705	0.758	0.797
d4c3		0.655		0.662		0.653	0.737	0.737
d4c4		0.674		0.681		0.671	0.797	0.758
d4c5		0.566		0.572		0.564	0.821	0.637

Table 4
Latent Factor Correlations for Model 4

	Domain 1	Domain 2	Domain 3
Domain 2	.975		
Domain 3	.888	.922	
Domain 4	.889	.898	.885

Table 5
Reliability Estimates for Model 4 and Personal Competencies Factor

	alpha
Factor 1	.719
Factor 2	.926
Factor 3	.877
Factor 4	.921
Whole Model	.967
Factor 5	.916
Personal Competencies	

Table 6
Pattern and Structure Coefficients for the Structural Model

			Pattern	Structure Coefficients				
			Coef.	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
d1	<---	d5	0.923					
d2	<---	d5	0.892					
d3	<---	d5	0.896					
d4	<---	d5	0.933					
d1a1	<---	d1	0.744	0.744	0.613	0.595	0.620	0.664
d1a2	<---	d1	0.651	0.651	0.536	0.520	0.542	0.581
d1a3	<---	d1	0.646	0.646	0.531	0.516	0.537	0.576
d2a1	<---	d2	0.548	0.451	0.548	0.453	0.472	0.506
d2a2	<---	d2	0.694	0.571	0.694	0.574	0.597	0.640
d2a3	<---	d2	0.723	0.595	0.723	0.598	0.623	0.667
d2a4	<---	d2	0.623	0.513	0.623	0.515	0.537	0.575
d2a5	<---	d2	0.649	0.534	0.649	0.537	0.559	0.599
d2a6	<---	d2	0.654	0.538	0.654	0.541	0.564	0.604
d2a7	<---	d2	0.642	0.528	0.642	0.531	0.553	0.592
d2b1	<---	d2	0.614	0.505	0.614	0.507	0.529	0.566
d2b2	<---	d2	0.676	0.556	0.676	0.559	0.582	0.624
d2b3	<---	d2	0.716	0.589	0.716	0.592	0.616	0.660
d2b4	<---	d2	0.755	0.621	0.755	0.624	0.650	0.697
d2b5	<---	d2	0.733	0.603	0.733	0.606	0.632	0.677
d2b6	<---	d2	0.765	0.630	0.765	0.633	0.659	0.706
d2c1	<---	d2	0.704	0.579	0.704	0.582	0.607	0.650
d2c2	<---	d2	0.615	0.506	0.615	0.508	0.530	0.567
d2c5	<---	d2	0.589	0.485	0.589	0.487	0.507	0.544
d2c6	<---	d2	0.512	0.421	0.512	0.423	0.441	0.472
d2c7	<---	d2	0.613	0.505	0.613	0.507	0.528	0.566
d2c8	<---	d2	0.478	0.393	0.478	0.395	0.412	0.441
d2c9	<---	d2	0.536	0.441	0.536	0.443	0.461	0.494
d2c11	<---	d2	0.612	0.504	0.612	0.506	0.527	0.565
d3a1	<---	d3	0.730	0.583	0.603	0.730	0.610	0.654
d3a2	<---	d3	0.780	0.624	0.645	0.780	0.653	0.699
d3a3	<---	d3	0.808	0.646	0.669	0.808	0.676	0.724
d3a4	<---	d3	0.765	0.612	0.633	0.765	0.640	0.686
d3a5	<---	d3	0.661	0.528	0.546	0.661	0.553	0.592
d3a6	<---	d3	0.688	0.550	0.569	0.688	0.576	0.617
d3b2	<---	d3	0.630	0.504	0.521	0.630	0.527	0.565
d4a3	<---	d4	0.678	0.564	0.584	0.567	0.678	0.633
d4a5	<---	d4	0.737	0.613	0.635	0.616	0.737	0.688
d4a6	<---	d4	0.644	0.536	0.555	0.539	0.644	0.601
d4b1	<---	d4	0.731	0.609	0.630	0.612	0.731	0.683
d4b2	<---	d4	0.580	0.483	0.500	0.485	0.580	0.541
d4b4	<---	d4	0.721	0.600	0.621	0.603	0.721	0.673
d4b6	<---	d4	0.523	0.435	0.451	0.437	0.523	0.488
d4b7	<---	d4	0.702	0.584	0.605	0.587	0.702	0.655
d4c1	<---	d4	0.812	0.676	0.699	0.679	0.812	0.758
d4c2	<---	d4	0.781	0.650	0.673	0.654	0.781	0.729
d4c3	<---	d4	0.721	0.600	0.621	0.603	0.721	0.673
d4c4	<---	d4	0.768	0.639	0.661	0.642	0.768	0.716
d4c5	<---	d4	0.642	0.534	0.553	0.537	0.642	0.599
d5a1	<---	d5	0.707	0.630	0.652	0.634	0.660	0.707
d5a2	<---	d5	0.670	0.597	0.618	0.600	0.625	0.670

d5a3	<---	d5	0.686	0.611	0.633	0.614	0.640	0.686
d5a4	<---	d5	0.629	0.561	0.581	0.564	0.587	0.629
d5a5	<---	d5	0.595	0.530	0.549	0.533	0.555	0.595
d5a6	<---	d5	0.710	0.633	0.655	0.636	0.663	0.710
d5a7	<---	d5	0.704	0.628	0.650	0.631	0.657	0.704
d5a8	<---	d5	0.666	0.594	0.615	0.597	0.622	0.666
d5a9	<---	d5	0.615	0.548	0.568	0.551	0.574	0.615
d5b1	<---	d5	0.564	0.503	0.521	0.506	0.527	0.564
d5b2	<---	d5	0.572	0.510	0.528	0.512	0.534	0.572
d5b3	<---	d5	0.584	0.520	0.539	0.523	0.545	0.584
d5b4	<---	d5	0.609	0.543	0.562	0.546	0.569	0.609
d5b5	<---	d5	0.665	0.593	0.613	0.596	0.620	0.665
d5b6	<---	d5	0.359	0.320	0.332	0.322	0.335	0.359
d5c1	<---	d5	0.381	0.340	0.352	0.342	0.356	0.381
d5c2	<---	d5	0.620	0.553	0.573	0.556	0.579	0.620
d5c3	<---	d5	0.619	0.552	0.571	0.555	0.578	0.619
d5c4	<---	d5	0.592	0.528	0.547	0.531	0.553	0.592
d5c5	<---	d5	0.496	0.443	0.458	0.445	0.463	0.496

Appendix

Accelerate Online Classroom Observation Scale

Rating Scale:

- 4 = Exceeds expectations
- 3 = Proficient
- 2 = Growth in progress
- 1 = Needs significant improvement
- N/A = Not Applicable
- N/O = Not Observed

Domain I: Student Participation in the Learning Process

STUDENTS:

1. Are actively engaged and successful in learning.
2. Demonstrate critical thinking and problem-solving.
3. Connect learning to life applications.

Domain II: Learner-Centered Instruction

A. PLANNING AND PREPARATION

1. Exhibits knowledge of subject matter.
2. Aligns instructional strategies with lesson objectives.
3. Integrates content effectively.
4. Plans for differences in learner(s) needs and abilities.
5. Demonstrates resourcefulness and creativity.
6. Uses a variety of instructional materials.
7. Provides organized and accessible materials.

B. INSTRUCTIONAL SKILLS—PROCEDURAL

1. Starts class promptly with little confusion.
2. States purpose, objectives, and procedures for lessons.
3. Maintains lesson pace.
4. Gives procedural and instructional directions clearly.
5. Uses appropriate transitional techniques.
6. Adapts to student attention span.

C. INSTRUCTIONAL SKILLS—TEACHING STRATEGIES

1. Focuses student attention by motivational techniques.
2. Relates lesson to prior knowledge and life experiences.
3. Presents lessons in an organized manner.
4. Models lesson expectations.
5. Uses questioning strategies for higher-level thinking.
6. Uses cooperative learning regularly and effectively.
7. Engages students in inquiry techniques.
8. Uses available technology effectively.
9. Uses manipulative materials appropriately.
10. Uses techniques that modify and extend student learning.
11. Engages students in lesson closure.

Domain III: Evaluation and Feedback

A. STUDENT EVALUATION

1. Monitors students' participation and progress.
2. Provides immediate and constructive feedback.
3. Bases evaluation on instructional goals/objectives.
4. Uses formal and informal assessment strategies.
5. Encourages student self-evaluation.
6. Provides opportunities for re-teaching and enrichment.

B. SELF-EVALUATION

1. Uses reflective thinking to analyze instruction.
2. Recognizes need for improvement and implements change.

Domain IV: Management of Student Discipline, Instructional Strategies, Time and Materials

A. PREVENTIVE MAINTENANCE AND ORGANIZATION

1. Is aware of total teaching situation.
2. Establishes clear rules and procedures.
3. Anticipates problems and plans prevention.
4. Maximizes student time on task.
5. Manages classroom routines effectively.
6. Uses classroom arrangement to enhance learning.

B. SUPPORTIVE MANAGEMENT TECHNIQUES

1. Encourages self-discipline.
2. Respects diversity among students.
3. Teaches students to exhibit respect for others.
4. Establishes risk-free environment.
5. Maintains positive rapport with students.
6. Seeks to know each student as an individual.
7. Reinforces appropriate behavior through encouragement.

C. CORRECTIVE MANAGEMENT TECHNIQUES

1. Exhibits a balance of fairness and firmness.
2. Enforces rules consistently and fairly.
3. Redirects inappropriate behavior promptly.
4. Shows disapproval of behavior but acceptance of student.
5. Remains calm in dealing with conflict and disagreement.

Domain V: Professional Competencies

A. COMMUNICATION

1. States academic and behavioral expectations.
2. Communicates on students' level of understanding.
3. Listens with empathy and respect for others.
4. Demonstrates enthusiasm for students and subject matter.
5. Incorporates students' opinions and ideas.
6. Uses effective verbal and nonverbal communication.
7. Uses appropriate and accurate oral and written communication.
8. Projects voice appropriately.
9. Avoids overused phrases (OK, Shhh, You know).

B. RELATIONSHIPS

1. Is dependable.
2. Displays courtesy and respect.
3. Is receptive to suggestions.
4. Adapts in a flexible manner.
5. Maintains a sufficient level of energy.
6. Is discreet with confidential information.

C. RESPONSIBILITIES

1. Abides by school operation schedule.
2. Meets responsibilities promptly.
3. Takes initiative in performing tasks.
4. Maintains professional dress and behavior.
5. Attends seminars and school related meetings.

Domain VI: Professional Development

1. Engages in professional development activities.
2. Works cooperatively with teachers, staff and supervisor.

Domain VII: Compliance with Requirements

1. Shows respect for others.
2. Creates a safe and orderly learning environment.