

# Why Kansas Can Not Get Over the Learning Styles Myth: A Document Analysis

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Educators and researchers have long strove to understand what strategies constitute best practices for inciting learning in the classroom. Among the most endeared of these strategies in modern history is learning styles theory. Despite its devoted following, there is no empirical evidence that implementing this theory can increase learning in the classroom. This study sought to determine the degree of entrenchment this theory has on the Kansas State Department of Education (KSDE) through a document analysis of their website, KSDE.org. In doing so, it is hoped that a dialog between all shareholders (researchers, teachers, administrators, parents, policy makers, etc.) will be opened and Kansas's educational system will continue to be reformed along research-based instructional practices.

## **Learning Styles Theory**

In assessing the prevalence of learning styles theory in Kansas's educational system, it is first necessary to define the term. Based on its popularity alone, one would assume that this is a straightforward task. Indeed, any simple internet search will lead to countless websites, assessments, editorials, and educational products for sale. However, there is little continuity within the learning styles community. A review by Coffield, Moseley, Hall, and Ecclestone (2003) found 71 distinct learning styles models and did not claim that this list was exhaustive. Put broadly, however, these models all contend that students have individualized modes of learning which, once determined, will lead to greater classroom performance if material is presented in that specified mode. The most popular of these learning styles models is the VARK model, which categorizes students into visual, auditory, reading/writing, and kinesthetic learners. At times, reading and writing is apparently discarded, and the VAK (visual, auditory, kinesthetic) model is used (Wininger, Redifer, Norman, Ryle, 2019).

Despite the discontinuity of the learning styles theory, nearly all learning style theory proponents adhere to some version of the second half of my definition of learning styles theory above. That is, that students experience greater learning when curricular material is presented to them in their specified learning style. This is referred to as the meshing hypothesis (Pashler et al., 2009). This is the justification for which instruction should be individualized based on students' learning styles, and void of the meshing theory, learning styles are reduced to something more like learning preferences that are more a matter of convenience than best educational practice. This becomes problematic because even if the first half of my definition (that learning styles exist) is assumed, learning styles assessments have been demonstrated to be dubious at best, with poor reliability, validity, and predictive power. What is more, most learning style assessments are

self-reported, which is chronically unreliable. Essentially, the mode of instruction that a student reports preferring is not necessarily the one that he or she learns most effectively with (Kirschner, 2017).

Widespread, albeit vague, claims of the potential benefits of implementing learning styles theory include (but are not limited to) increased motivation, prolonged concentration, improved memory and retention, and strengthened self-advocacy skills (Scott, 2010). Nevertheless, it has been well documented that the empirical evidence to support such claims is painfully weak (Gudnason, 2017; Kirschner, 2017; Newton & Miah, 2017; Pashler et al., 2009; Pomerance et al., 2016; Scott, 2010). This lack of empirical evidence has led some researchers to go so far as to refer to learning styles as a myth (Kirschner; 2017; Nancekivell et al., 2020; Newton, 2015; Riener & Willingham, 2010), snake oil (Scott, 2010), debunked (Pomerance et al., 2016), pseudo-science (Pomerance et al., 2016), and an emperor without clothes (Kirschner, 2017), indeed strong language for academic writing. Failures to demonstrate a correlation between students' presumed learning style and increased learning have been well documented and too numerous for a comprehensive list here. One recent example, however, includes a study in which students' learning styles were associated with subjective aspects of learning (such as how a student predicted they would do on the assessment) but not objective measures (their actual performance on the assessment) (Knoll et al., 2017). In another study, medical students were categorized as either intuitive or sensing learners. Instruction was then individualized based on these categories. No significant improvements in learning outcomes were demonstrated (Cook et al., 2009). Despite such failures to find a correlation between learning style and classroom performance, learning styles still appear in many education textbooks (Wininget et al., 2019) and learning styles proponents are widespread in higher education (Newton, 2015; Newton & Miah, 2017).

It should also be noted that even if new data demonstrated a benefit to implementing learning styles theory into classrooms, the demonstrated effect size would need to be far stronger than statistically significant to be cost effective. Schools have a finite amount of resources, and implementing any new strategy requires already busy teachers' time. To fully implement learning styles theory, each student would need to be tested for their learning style, and lessons would need to be individualized to each student. Necessary materials (most notably learning styles assessments) would be a substantial expense for a school district, taking away their ability to implement other programs or purchase other materials (Pashler et al., 2009). Furthermore, it would be difficult to place value on the opportunity cost associated with learning style assessments taking place over classroom instruction. In light of the lack of evidence for learning styles theory's effectiveness and the potential expense of time and resources to implement such a strategy, learning styles theory can not be recommended as best practices for schools to adopt in Kansas nor elsewhere.

## **Methods**

This study aimed to determine the influence that learning styles theory has on Kansas's educational system at the state level. Toward this aim, a document analysis of KSDE's website, KSDE.org was conducted from January to March of 2020. Analysis of the website was conducted through four techniques. First, the search engine in the website itself was used. The

terms “learning styles”, “learning modalities”, and “differentiation” were used to retrieve potential hits related to learning styles theory. Second, a general internet search was conducted. The same terms, accompanied with “KSDE” were used. Only hits within KSDE’s website were considered for this study. Third, throughout the website, the “find” function was used with the above terms. Finally, the most time consuming of the four methods was a more manual search of the website. Documents, videos, presentations, and other content related to differentiation or generally deemed to be noteworthy in their influence on Kansas educational policy were read, viewed, and analyzed. While this categorization of noteworthy data is admittedly subjective, the size of KSDE’s website made a comprehensive search unreasonable, particularly for a single-researcher project. Sources were manually searched based on the author/creator’s position within KSDE, the degree to which the content was likely to impact practices in the classroom, and the general availability of the document. Because of the size of the website, many pages are exceedingly complicated to find, and therefore unlikely that a classroom teacher will regularly find and implement. Documents related to the Kansas CAN program were given particular attention to this manual search. Despite this limited manual search, a data saturation point was determined, as the same references to learning styles were found with multiple methods, and no more references could be found. This was determined sufficient to bring confidence in addressing the research question.

Each time a potential reference to learning style theory was found, three questions were considered:

- Is this a reference to learning styles theory?
- Is the reference advancing, detracting, or neutral toward learning styles theory?
- Does this reference have the potential to impact Kansas education in a meaningful way?

First, it needed to be determined if the found reference was truly referencing learning styles theory. Bowen (2009) highlighted the need for document analysis researchers to determine if documents fit into the purpose of their study. Likely due to the discontinuity within learning styles theory, the term learning styles has generalized, taking on a looser definition (Newton & Miah, 2017). Learning styles seems to at times to be (incorrectly) used interchangeably with more general educational concepts such as differentiation. Therefore, because there is no single definition of learning styles theory, more general terms such as differentiation are at times used in a context that is indicative of learning styles. References to learning styles, learning modalities or differentiation that were not deemed to truly be related to learning styles theory were ignored thereafter.

Secondly, it needed to be determined what stance each reference was taking toward learning styles theory. If, for example, a document encouraged student teachers to implement learning styles theory, it would (and should) be regarded quite differently from a reference which mentioned the lack of empirical evidence to support learning styles theory.

Third, it was important to determine what practical implications each reference might have. KSDE’s website is very large with lots of large documents on it that most classroom teachers have likely never seen. Bowen (2009) illustrated the importance of objectivity and sensitivity while conducting document analysis research. This was particularly relevant to question three.

It was important that this document analysis refrain from condemning KSDE for archiving material with isolated references to learning styles theory in the depths of the website where they are unlikely to make any real impact on what classroom teachers do. Still, there is lots of content on the website that is used by classroom teachers and administrators to guide practices and policies that impact what goes on in Kansas classrooms. My task was to differentiate between the two and attempt to determine the practical impact that each reference was likely to have.

Collectively, my data analysis strove to put all discovered documents on KSDE's website into proper context. Rather than simply "lifting words and passages from available documents", I considered factors including the representativeness, completeness, purpose, and audience of each document (Bowen, 2009, p. 33) in order to determine the influence that learning styles theory has on education in Kansas.

## **Results**

Based on the international popularity of learning styles theory and the amount of data on KSDE's website, it was unsurprising that references to learning styles theory were found. In total, nine individual documents, representing a wide variety of perspectives within the educational community were found to recommend, provide resources for implementing, or mandate learning styles theory. These nine documents, however, did not tell a complete story, as many of them had many of references to learning styles theory within them, and they varied widely as to the potential influence they were likely to have on Kansas classrooms. It was found to be useful to categorize these references based on the nature, likelihood of impact, and other contextual factors. See Figure 1 for a visualization of the recovered references to learning styles theory and their categorization.

It should also be mentioned that no references discouraging learning styles theory were found, although this was expected. Documents on KSDE's website, such as curriculum standards, are much more likely to describe what should be taught rather than what should be avoided. Such a lack of negative references should therefore be given negligible attention.

### **Category One: Low Level or Unclear Likelihood of Impact**

One category of documents that emerged was determined to be relatively benign. In these cases, references to learning styles were small in number, vague, and unlikely to impact classroom practices noticeably. For example, the Kansas State Literacy Plan and Kansas Guide to Learning: Literacy (2017), a 131-page document has one reference to learning styles. In the grade 6-12 section, the Guide encourages teachers to differentiate based on, "content/topic, process/activities, products, environment/learning styles" (p. 93). Put into proper context, learning styles theory appears to be a very small part of the literacy strategy that this Guide is trying to implement and is offered as only one means in which a teacher could differentiate his or her course content. Still, it is problematic that the next line in the guide encourages teachers to pursue "brain-based learning principles", (p. 93) implying that learning styles theory is one such principle.

Another reference to learning styles theory that could be placed in this first category was found in the “School Counseling Resource” (2020) page. One section of that page is titled, “Career Resources and Individual Plans of Study”. In that section, an elementary example of a

**Figure 1.**

**Categorization of learning style references**

<b>Document/ Website</b>	<b>URL</b>	<b>Category</b>
School Counseling Curriculum Map/Pacing Guide -1 <sup>st</sup> Semester	<a href="https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/School_Coun_Resource/Curriculum%20mapping%20elementary%20example.pdf?ver=2013-12-13-092509-777">https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/School_Coun_Resource/Curriculum%20mapping%20elementary%20example.pdf?ver=2013-12-13-092509-777</a>	1
Middle School Counseling Curriculum Map, 1	<a href="https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/School_Coun_Resource/Curriculum%20Mapping%20Middle%20School%20Example.pdf?ver=2013-12-13-093242-997">https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/School_Coun_Resource/Curriculum%20Mapping%20Middle%20School%20Example.pdf?ver=2013-12-13-093242-997</a>	1
Kansas Individual Plan of Study Checklist	<a href="https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/School_Coun_Resource/Kansas%20Individual%20Plan%20of%20Study%20Checklist.pdf?ver=2013-12-08-234822-707">https://www.ksde.org/Portals/0/CSAS/Content%20Area%20(M-Z)/School%20Counseling/School_Coun_Resource/Kansas%20Individual%20Plan%20of%20Study%20Checklist.pdf?ver=2013-12-08-234822-707</a>	1
Kansas State Literacy Plan and Kansas Guide to Learning: Literacy	<a href="https://community.ksde.org/LinkClick.aspx?fileticket=%20mE1d0iKMy%3D&amp;tabid=5899&amp;mid=14457">https://community.ksde.org/LinkClick.aspx?fileticket=%20mE1d0iKMy%3D&amp;tabid=5899&amp;mid=14457</a>	1
Financial Literacy in Kansas.	<a href="https://www.ksde.org/Agency/Division-of-Learning-Services/Career-Standards-and-Assessment-Services/Content-Area-F-L/Financial-Literacy">https://www.ksde.org/Agency/Division-of-Learning-Services/Career-Standards-and-Assessment-Services/Content-Area-F-L/Financial-Literacy</a>	2
Kansas English Language Arts Standards.	<a href="https://community.ksde.org/Default.aspx?tabid=5302">https://community.ksde.org/Default.aspx?tabid=5302</a>	2
Kansas Performance Teaching Portfolio (KPTP)	<a href="https://www.ksde.org/Portals/0/TLA/Licensure/KPTP%20Content%20Guidelines.pdf">https://www.ksde.org/Portals/0/TLA/Licensure/KPTP%20Content%20Guidelines.pdf</a>	3

Regulations and Standards for Kansas Educators	<a href="https://www.ksde.org/Portals/0/TLA/Licensure/Licensure%20Documents/CertHandbook18-19fulltext%2009042018.pdf?ver=2018-09-04-144958-147">https://www.ksde.org/Portals/0/TLA/Licensure/Licensure%20Documents/CertHandbook18-19fulltext%2009042018.pdf?ver=2018-09-04-144958-147</a>	3
Required and Recommended Student and Staff Training	<a href="https://www.ksde.org/Teaching-Learning/School-District-and-Student-Services">https://www.ksde.org/Teaching-Learning/School-District-and-Student-Services</a>	4

curriculum map is provided. That example curriculum map states that students should be able to, “Understand how personal learning styles can impact school achievement.” In the same section of the website, a middle school example states that students will be able to, “Use knowledge of learning styles to positively influence school performance”, the similar wording of which suggests that this implementation of learning styles theory is a counseling standard, although a relevant standard is not found on the state counseling standards document. There is, however, a document in the same section titled, “Kansas Individual Plan of Study Checklist” (Career Resources and Individual Plans of Study section). In that document, both middle and high school students are expected to take a learning style assessment. First, regarding the example curriculum maps, it should be noted that KSDE did not write either of these documents. They are examples written and provided by two schools. Secondly, given that learning styles do not appear on the state counseling standards but do appear on these resources calls into question the degree to which these expectations impact real world practices in Kansas schools. Greater clarification is needed to fully determine the level of impact that this reference is making in Kansas classrooms.

### Category Two: Moderate Likelihood of Impact

A second category was deemed to be more significant, due to its comparatively increased likelihood to impact practices in the classroom and more specific direction to implement learning styles theory. For example, within the English Language Arts standards (2012) page, there is a document which provides guidance for English Language Arts teachers on how to use online resources, which, it says can, “can foster engaging learning opportunities that appeal to a variety of learning styles” (Online Resources section). To be fair, this mentioning of learning styles is fairly obscure, and the absence of learning styles theory from the English Language Arts standards indicates that (as mentioned above) that the overall impact of learning styles theory on English Language Arts curriculum should be considered moderate. Nevertheless, this passage is directing teachers to implement specific teaching strategies based on practices that lack empirical evidence.

A second document of moderate potential impact was the “Financial Literacy in Kansas” (2020) page. In it, KSDE offers “support to local school districts concerning personal financial literacy instruction for K-12 schools” (2020). On that page, the “K-12 Classroom Resources” section, offers questions that teachers should ask of resources they’re considering to utilize for classroom

instruction. Question five (of five) is, “Is the Instructional design research-based and/or evidence-based, age appropriate, and allows for multiple learning styles? (NOTE: Research should be educationally sound.)” (2020). This reference was deemed concerning for two reasons. First, the “Financial Literacy in Kansas” page presumes to primarily be a resource for schools interested in implementing financial literacy. Therefore, any resources they access will be foundational for the entire program. A second note of concern is not only that learning styles theory is referenced but the specific association between learning styles theory and research-based practices in education.

### **Category Three: Teacher Education Programs**

A third category of influence of learning styles theory in Kansas education was that upon teacher educator programs. The “Regulations and Standards for Kansas Educators” (2018-2019) is a document which, “combines regulations for licensure with those for accrediting and approving teacher preparation programs” (p. 3). Essentially, this document establishes regulations for what is required of a teacher educator program in order for its graduates to be licensed by the State. The expectation that pre-service teachers understand and be able to implement learning styles theory runs throughout the document. In fact, a “find” search of the phrase “learning styles” results in 24 hits. To be fair, this volume of references is largely due to the nature of the document. Because every content area which KSDE licenses has a section in the document and nearly every content area references learning styles theory, the result is a large number of references. Still, most of the references are specific and direct that teacher educator programs are required to implement instruction of learning styles theory. For example, elementary education majors are required to, have “knowledge of learner strengths, interests and differing learning styles to plan instruction and establish/maintain rapport with learners” (p. 125).

Another document which requires teacher educator programs to implement learning styles theory is the Kansas Performance Teaching Portfolio (KPTP) (n.d.), which is a portfolio that many Kansas colleges and universities require of their pre-service teachers during their clinical practice. This document requires student teachers to demonstrate that they, “address multiple learning styles and intelligences” (p. 19) and “differentiate for a range of abilities and learning styles” (p. 16) in their students.

This category of references to learning styles theory was deemed particularly troublesome because of the nature of the references and the power dynamics at play. In previous categories of learning styles theory references, learning styles theory is offered as a resource or strategy that teachers would do well to implement. Nevertheless, they largely carry the implication that it is an option or one potential way that teachers can differentiate. In this category, however, learning-styles theory is presented not only as a requirement for teacher educator programs to implement into their coursework but pre-service teachers to implement into their instruction during their clinical practice experience. Both references carry with them a potential consequence (through lack of accreditation and reduction of grade respectively) if learning styles theory is not implemented.

## **Category Four: Old Website Versions**

A final category of the influence of learning styles theory should also be mentioned. KSDE's "Required and Recommended Student and Staff Training" (2020) page provides teachers and administrators with a variety of resources that are broadly categorized under, "Leadership Training, Prevention and Responsive Culture, and Student Safety and Wellness". In what appears to be an older version of the page which can still be accessed through a general internet search it claimed, "Effective professional development is timely, needs based, integrated, and appeals to a variety of learning styles" (How? section). In the current version of the page, however, that section has been removed and no reference to learning styles theory is present. While it is unclear why this reference was removed or if it was part of a conscious effort to remove references to learning styles theory, this change to the website should be praised and replicated.

## **Discussion and Conclusion**

The aim of this study was to determine what level of influence learning style theory has on the Kansas educational system through a document analysis of the KSDE website, KSDE.org. Far from a condemnation, the purpose of doing so is to bring about more productive conversations between all those invested in Kansas schools to continue aligning practices in the classroom with evidence-based strategies. As anticipated (based on the international popularity of learning styles theory) evidence of learning styles theory's influence can be found in policies that guide practices in Kansas classrooms.

It may be tempting to categorize learning styles as an educational fad that will harmlessly pass in its own time. Doing so may be overlooking the real harm which learning styles theory can cause. While educators and policymakers implementing learning styles theory undoubtedly have good intentions, learning styles theory is just another way to label students, defining what they are capable of learning and what they are not, and place artificial limitations upon them. If students are told that they are a specific learning style, the implication is that they are incapable of learning effectively in any other format. What is more, it is also conceivable that students receiving content in their supposed learning style could have a false sense of security that they will be successful (Newton & Miah, 2017). Perhaps even more discouraging as to the implications of learning styles is the effect it may have on teachers. There is some evidence to suggest that learning styles theory may encourage teachers to develop more entrenched assumptions about their students' capabilities, maintaining those assumptions even after a student has exceeded them (Scott, 2010). Particularly given the emphasis that the Kansas Can initiative has placed on social-emotional learning, any educational practices which places stereotypes, limitations, and assumptions upon students deserves heavy scrutiny.

So why does this myth persist in Kansas and elsewhere? Undoubtedly there are many researchers, administrators, teachers, and policy makers in our state that are dedicated and talented enough to ensure that the best available information and strategies are being applied into practice in Kansas classrooms. First, learning styles theory has been problematic to stamp out because its most general claims are indeed true: students differ from each other (Riener & Willingham, 2010). What is more, teachers are constantly bombarded with antidotal evidence of

learning styles theory. Nearly every teacher has seen students gravitate toward a particular lesson or suddenly understand a concept when retaught in a different manner. Those same, well intended teachers are then prone to confirmation bias, noticing those antidotal experiences which seem to confirm the existence of learning styles theory (Riener & Willingham, 2010).

The popularity of learning styles theory has also likely led to a well-known psychological phenomenon known as Pygmalion or Rosenthal Effect, where teachers elevated expectations of a student (based on the fact that they are being taught in their supposed learning style) leads to improved performance. Essentially, teachers who implement learning styles theory may be creating a self-fulfilling prophecy (Kirschner, 2017). If teachers think students will perform better, their instruction adjusts accordingly. For example, they may hold students to more rigorous standards or allow for corrections to assignments based on the belief that they are capable of doing better. In turn, the students' performance improves.

Finally, learning styles theory likely persists because it fits into the egalitarian (and well-intended) views of public education. That is, that all students have self-worth and are capable of learning (Riener & Willingham, 2010). Indeed, that is much of the philosophy that led America to universal public education in the first place. That philosophy, however, has been morphed by learning styles theory to suggest that all students have specific learning styles that can be harnessed if only the teacher is willing and able to do so. Such an attitude ignores, however, the well-documented fact that students vary in academic ability and places an unrealistic burden on teachers when their students are not successful. Indeed, learning styles theory, when perhaps taken to its extreme, would suggest that any student's failure can be explained by the fact that they were not taught in the proper learning style (and it is the teacher that is therefore to blame).

Based on all these above factors and learning styles theory's international popularity, it should not be surprising that learning styles theory seems to have some influence on Kansas schools. Greater research needs to be done, however, as to the degree of influence learning styles theory is having on Kansas classrooms, how it is being implemented, and why those implementing it are doing so. Perhaps what is needed even more than further research, however, is greater conversation between all stakeholders as to how Kansas schools can continue to be driven along research-based lines.

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