

## **Addressing Persisting Knowledge Gaps and Promoting Change via Personalized Continuing Education**

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### **Introduction**

Medical professionals often seek comprehensive continuing education (CE) in their field of expertise that spans one or more days and provides a wealth of information pertinent to their practice. While this type of traditional learning is effective, many medical professionals will go home having grasped some topics more so than others. To address this need, Vindico developed and executed a *Personalized Learning* educational platform in which post-tests and evaluation responses of attendees of a comprehensive CE course are assessed at the individual learner level to identify persisting gaps in knowledge. Approximately 2 weeks after the education, all post-test takers are emailed a web link to a follow-up, 0.25-credit hour CE activity designed to specifically address the most significant persistent knowledge gap for that individual. Vindico has proven that this method is not only an effective method to transfer knowledge, but it also promotes engagement and practice change related to the overall comprehensive CE.

### **Implementation of *Personalized Learning***

Vindico's first *Personalized Learning* program was implemented in 2017 as follow-up education for the established *RA Forum™* multi-city meeting series. The comprehensive half-day meeting coupled didactic presentations and case scenarios, covering topics such as the immunopathology of rheumatoid arthritis (RA), clinical advances with current therapies, emerging treatment options, and the management of risk in patients undergoing immunosuppressive therapy. Post-education, post-test and evaluation responses from each post-test taker from each live meeting (or the associated web archive) were analyzed (Figure 1). Participants were scored on each learning objective and then sent a link to one of three *Personalized Learning* activities designed to address persistent individual learner gaps in knowledge.

Importantly, the *Personalized Learning* activities were closely tied to educational goals of the overall program. Specifically, the learning objective from each of the three follow-up activities was identical to one or more of the learning objectives from the initial *RA Forum™*, which were constructed to address the identified gaps from the detailed needs assessment.

### **Results**

*Participation* - One hundred fifty-one (151) providers participated in the live *RA Forum™* and 166 participants in the web archive took the post-test. Of the 317 *Personalized Learning* invitations that were sent, there were 61 unique learners in the follow-up activities (Figure 2, top). Notably, this 19% participation rate is approximately 4 times higher than traditional response rates to follow-up surveys observed among rheumatologists. Interestingly, while learners were only directed to one activity, 30% participated in multiple activities, demonstrating that this personalized approach encourages learning beyond that to which they were initially directed (Figure 2, bottom).

*Knowledge* - Participants were directed to one of 3 *Personalized Learning* activities if they answered incorrectly to the post-test question that matched the learning objective of the follow-up activity. In other words, nearly all learners who participated in each *Personalized Learning* activity were deficient on that topic following the initial CE course. The post-test scores after completion of the reinforcing CE, however, were much higher - 75%, 64%, and 53% - indicating that the follow-up activities closed knowledge gaps.

*Practice Change* – In a follow-up assessment sent approximately 45 days post-education designed to assess practice change, those who participated in at least one of the *Personalized Learning* segments were 50% more likely to select appropriate treatment for a patient with RA and congestive heart failure (CHF) versus those who attended the initial CE only. Moreover, while the *Personalized Learning* activities themselves were not designed to promote practice change, learners who participated in at least one *Personalized Learning* activity were more likely to incorporate practice changes versus those who did not. Collectively these findings suggest that the personalized learning approach addresses persisting knowledge gaps, ultimately resulting in increased awareness of an individual's alignment of his or her practice patterns with the latest evidence-based care.

## **Discussion**

The forgetting curve has long been a challenge in CEhp, yet an underappreciated challenge is perhaps, the “never-learned” curve. *Personalized Learning* is specifically designed to give those learners who may have missed a critical teaching point during a comprehensive course a second chance to master the topics. Using the latest technology for data collection, analysis, and communication, this initiative demonstrates that a personalized approach to education is impactful, and it encourages further learning as well as practice change. Key takeaways are summarized below:

- Post-test scores on personalized activities demonstrated that the personalized approach closed persisting knowledge gaps.
- The *Personalized Learning* approach garnered high participation rates, suggesting that the personalized follow-up and/or potential to earn CE credit incentivized follow-up participation.
- 30% of *Personalized Learning* participants engaged in more than one activity, suggesting that the personalized approach encourages further learning.
- The *Personalized Learning* approach fostered greater alignment of practice patterns with the latest evidence-based care.
- Participants in a *Personalized Learning* activity were more likely to implement practice improvements versus those who did not.

Since the inaugural *Personalized Learning* program, this platform has expanded its use to other therapeutic areas with similar success and has been presented at clinical congresses. With continued improvement and the addition of more automation, this *Personalized Learning* platform can be further utilized to address persisting knowledge gaps and encourage further learning on an individual level.

## **Conclusion**

The *Personalized Learning* approach described herein has proven effective at addressing individual gaps in knowledge that persisted after participation in a comprehensive CE program. Additionally, it encourages participation in further learning and promotes alignment of practice patterns with the latest evidence-based care. The expanded use of this educational design will be a valuable tool to foster more effective learning across disciplines and therapeutic areas.

## **Support**

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**Figure 1:** Schematic of the *Personalized Learning* strategy described herein.

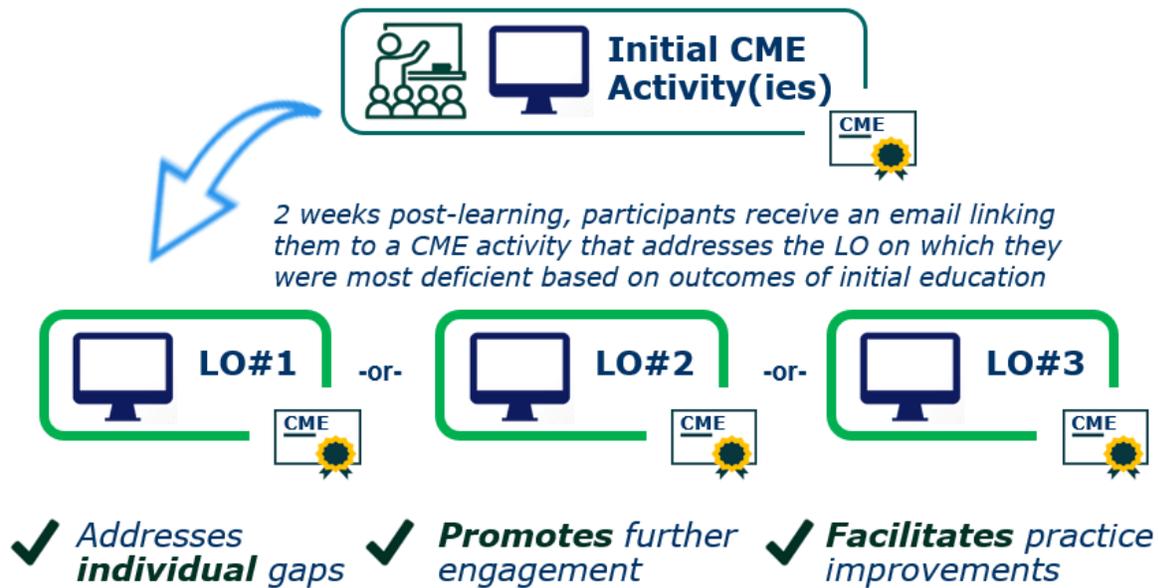
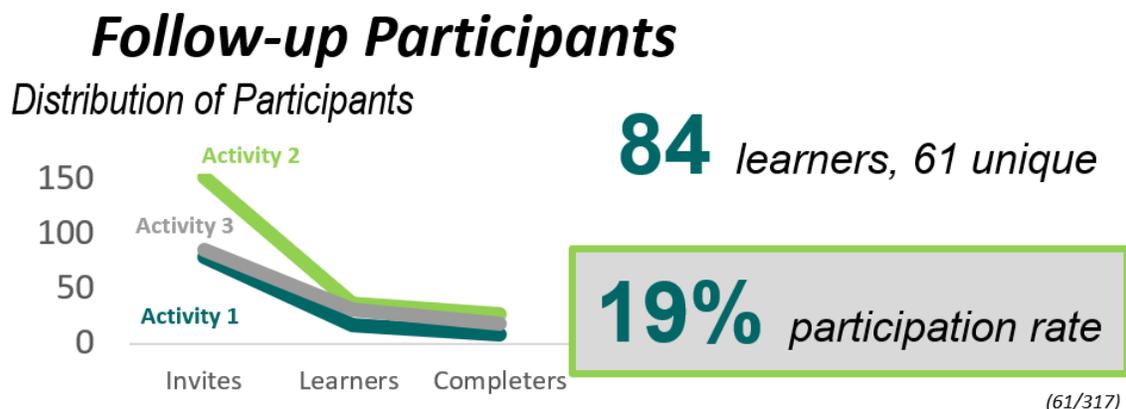


Figure 2. Participation in the personalized, follow-up activities



Participants were only directed to 1 activity, yet

