<table>
<thead>
<tr>
<th>Paper Session:</th>
<th>Motivation to learn and lifelong learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Julia Gorges (<em>Philipps-University Marburg, Germany</em>)</td>
</tr>
<tr>
<td>Presentations</td>
<td>1. Title: Motivation to learn and multilingualism across the adult life stages in the USA. Authors: Shalini Sahoo (<em>University of Maryland, USA</em>), Takashi Yamashita (<em>University of Maryland, US</em>), Roberto Millar (<em>The Hilltop Institute, US</em>) &amp; Phyllis Cummins (<em>Miami University, US</em>)</td>
</tr>
<tr>
<td></td>
<td>2. Title: Motivation to learn by age, education, and literacy skills among working-age adults in the USA. Authors: Takashi Yamashita (<em>University of Maryland, USA</em>), Thomas Smith (<em>Northern Illinois University, USA</em>), Shalini Sahoo (<em>University of Maryland, USA</em>) &amp; Phyllis Cummins (<em>Miami University, US</em>)</td>
</tr>
<tr>
<td></td>
<td>3. Title: Job tasks and cognitive skill accumulation. Author: Qinyi Liu (<em>University of International Business and Economics, China</em>)</td>
</tr>
</tbody>
</table>
1. Motivation to learn and multilingualism across the adult life stages in the USA.

Authors
Shalini Sahoo (University of Maryland, US), Takashi Yamashita (University of Maryland, US), Roberto Millar (The Hilltop Institute, US) & Phyllis Cummins (Miami University, US)

Presenter
Shalini Sahoo (University of Maryland, US)

Abstract
Lifelong learning, or continuing education over the life course, has become necessary to navigate the rapidly changing technological landscape in the USA. Motivation to learn (MtL) is essential for facilitating lifelong learning participation. Over the last two decades, the percentage of American adults age 18 years and older who are multilingual nearly doubled from 9% to 17%. Yet, little is known about the associations between being multilingual and MtL across the life stages. Drawing from the adult education participation theoretical model, the goal of the current study was to investigate whether multilingualism is linked with MtL across the adult life stages. Nationally representative data came from the 2012/2014/2017 Program for International Assessment of Adult Competencies (PIAAC) USA restricted use file (RUF). Using a previously validated latent MtL construct, structural equation models were estimated by four age groups --- 25-34 (n = 2,310); 35-44 (n = 1,610); 45-54 (n = 1,670); and 55 and older (n = 2,620). Results showed that being multilingual was associated with greater MtL among younger age groups, including ages 25-34 (b = 0.20, p = 0.01) and 35-44 (b = 0.28, p < 0.001), after adjusting for the demographic, socioeconomic and health characteristics of individuals. Multilingualism was not associated with MtL among older age groups, including 45-55 (b = 0.06, p = 0.50) and 55 and older (b = 0.13, p = 0.19). Findings suggest that MtL varies across life stages in multilingual adults. Factors including being multilingual with or without English as a first language may provide deeper insights into the relevance of language skills for lifelong learning. Since MtL is linked to lifelong learning, and in turn, life outcomes (e.g., income, job security), educational policies should consider targeting younger multilingual American adults. Subsequently, policies designed to enhance MtL of older adults, regardless of the language abilities, may need more attention given the possible economic impacts (e.g., increasing older workforce) by accounting for educational needs, and learning style preferences. Older adults who are looking to change career or employment often prefer a personal and interactive learning experience, as opposed to a digital experience.
2. Motivation to learn by age, education, and literacy skills among working-age adults in the USA.

Authors
Takashi Yamashita (*University of Maryland, US*), Thomas Smith (*Northern Illinois University, US*), Shalini Sahoo (*University of Maryland, US*) & Phyllis Cummins (*Miami University, US*)

Presenter
Takashi Yamashita (*University of Maryland, US*)

Abstract
Motivation to learn (MtL) is a prerequisite for adult education and training participation over the life course. In the U.S., only about half of adults participate in education and training. Also, adult populations have become demographically and socioeconomically more diverse across the global community. In the current literature, older age, lower educational attainment, and lower literacy proficiency arguably are the most important MtL determinants. However, little is known about MtL across sub-populations due to methodological limitations. Specifically, the most common psychometric approaches --- multigroup confirmatory factor analysis and factorial invariance testing procedures --- require numerous pairwise comparisons of estimated parameters (e.g., factor loading, intercept) from the measurement model. For example, even when comparing 10 sub-groups based on a simple one-factor model with three indicators, the invariance test may require up to 360 pairwise comparisons. Therefore, detailed sub-populations involving combinations of characteristics, such as older adults with lower educational attainment with limited literacy proficiency, and younger adults with higher educational attainment and high literacy proficiency, have been understudied in the context of MtL. The lack of information about the subpopulations is problematic when developing education programs and policies to reach out to diverse adult populations. This study developed a national profile of MtL by comparing 16 subpopulations that are defined by 5-year age intervals, education level, and literacy proficiency in the U.S. Data from adults aged between 25 and 65 years old were obtained from 2012/2014/2017 Program for International Assessment of Adult Competencies (PIAAC) restricted-use file (N = 8,400). The alignment optimization method was employed to estimate subpopulation means of the PIAAC-based, 4-item latent MtL construct, which has been psychometrically validated in prior research. The alignment optimization method is a computer algorithm that identifies comparable measurement models, estimates the latent means, and conducts statistical significance tests for all combinations of sub-groups. Results showed that subpopulations with younger age, greater educational attainment, and higher literacy proficiency showed significantly greater MtL. At the same time, results from this study highlighted the complexity of the intersections across MtL determining factors. More detailed results and implications for policy and practice are evaluated.
3. **Job tasks and cognitive skill accumulation.**

**Author (Presenter)**
Qinyi Liu (*University of International Business and Economics, China*)

**Abstract**
Learning-by-doing is an important channel of skill acquisition. This study investigates how an individual’s cognitive skills can be improved through various tasks at work. It uses rich information on job tasks performed at the individual level to construct three measures of job task complexity: overall job complexity, analytical task intensity, and interactive task intensity. Controlling for task selection, the results show that both overall job task complexity and analytical tasks can contribute to the development of a worker’s cognitive skills, while interactive tasks play a less significant role. Furthermore, complex job tasks can offset the aging effect of cognitive functioning. The findings have implications for work design, cognitive interventions, and retirement policies.