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7KLVF RXUVHZLOOSURYLGH DQ RYHUYLHZ RI WKH FRQFHSWV DQG WHFKQLTXHV XVHG LQ WKH VFLHQWLILF VWXGB RI KXPDQ SHUVRQDOLW\ 7KH FRXUVHZLOO

E EXLOG RQ HYLGHQFH IURP WKH HDUOLHVW GD\V RI WKH VFLHQWLILF VWXGB RI KXPDQ SHUVRQDOLW\ O

F RQVLGHU VRFLDO FXOWXUDO DQG GHYHORSPHQWDO IDFWRUV LQIOXHQFLQJ 7KLV FRXUVHZLOO DOVR LQWURGXFH VWXGHQWV WR SHUVRQDOLW\ DVVHVVPHQW DQG UH VHDUF KP HWKRG \O RVWP SRUWZQWO WKHUHZLOE HDIRFXVRQFXWLQJ HGJHUpWKEYF RXUVHLV

-HUHP\ * 6WZ DUW3 K & 3 \FK ' U6WZ DUWUHF HLYHG DVLVWDQF HURP 6KDKU DU1 DHLQL D JUDG ZDVI VWXG HBWLQWKH' HSDUP HQWRI 3\FKRORJ\ DV4 XHHQÉ/8 QLYHUVLV LQSUHSDULQJ VRP HRI WKH LQWUDFWLYH FRXUHQRWV Ib

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8 SRQVXF FVHXOF IR SOHMRQRI WKLVF RXUVH \RX ZLOE HDE HGVR

,G HBWI\ NH\ F RQF HSWV DQG FR P RQDOLHVZ LWKLQ WKH VL[P DVRUG IR DLQVRUVFKRROYRI WKRXJKWLQXQGHUWDQGLQJ SHUVRQDOLW\ 7KURXJK G HBQJ WKLV VWXG HBWZ LOOSSUHFLDWH WKH FRP SOH[LW RI WKH HVHGILHUHQWDSSURDFKHV

(YDOXDWH WKH VWUHQJWKV DQG ZHDNQHVVHV RI GILHUHQWDSSURDFKHVWR XQG HUWDQGLQJ SHUVRQDOW IRUGHVFUELQJ LQGLYLGXDO GILHUHQF NVLQE IKDYLRXUb

&RP SDUHDQG F RQWDVWWKH XWLOLW RI SHUVRQDOW FRQF HSWV DQG P HWKRG YZ D YZRQHP SLUFDOH HSDUK OWUDWXUH

' HVFULEH WKH VFHQDULRV DSSURDFKRS SHUVRQDOLW\ DQGGIILHUHQWLDWHP SLUIDOO VXSSRUWHGVRRYIRUSHUVRQDOLW\ DVVHVVP HQWURP ÍSRSÎSV\F IKRORJ\ DSSURDFIKV

' HE XQNF IRP P RQP\ WKVDE RXWSHUVRQDOW\ G VERUG HVDQGFUWLFDO HYDOXDWMKRZ WKHVHGLVRUGHUVDUHGHØQHG

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7RUHDGP RUHDE RXWKHKLWRU RI WKHODQG VHHWKH4 XHHQV(QF\FORSHGLDWKWS ZZZ TXHQVXF DHQF\FORSHGLDWWDGWRQDO WMUUWRUHV

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4 XHHQV8 QLYHUVLW\ UHF RQ]HVWKDWWKHYDXHVRI HT XW DQGGYLHUVLW DUHYLWDOWRDQGLQKDUP RQ\ ZLWKLWVHGXFDWRQDOP LVVLRQDQG WWDQG DGUR H[F KDHQF H,WDF NQRZ OHGJHVWKDWGUHFWLQGUHFWDQGV\ VMP LFGLVFUP LQDWRQH[LWVZ LWKLQRXULQWXXRQDOWXFXUHV SRQF HLVDQGSUDF WV MDQGLQRXUF IR P XQLW 7KHVHWDNHP DQ\ IRUP VDQGZ RUNVRGLII HUHQWDDO DGYDQWDJHDQGGLVDGYDQWDJHSHUVRQV DF EWVVRF IDOG EWWWHVVXF KDVUDF H-HWKQLFW GWDE QW JHQG HLG EWW VH[XDORUHQWDWRQ IDWK DQGVRFLRHFRQP LF WDWXV DP RQJ RWKHU[DP SOHV

4 XHHQVLVF IR P LWWGVRF BXQWUDF NQJ GWFUP LQDWRQ LQWKLVLQWXXRQDQGGHYHORSLQJ DFDP DWIRI HGXFDWRQDOHTXLW VWKDW UHF RQ]HDQGUHVPHF VWKHHT XDOG JQLW DQGZ RUWK RI DOZ KR VHHNVRSDUWFLSDWLQWKH0 H ZRUN DQGP LVVRQ RI WKH8 QLYHUVLW 6XF KDF IED DWILVF HDWMGDQGP DLQWDLQHGE\ G YHORSLQJ DXQLYHUVLW ZLG HFRP P LWP HQVWRDQGXQGHUWZQGLQJ RI HGXFDWRQDOHTXLW VXSSRUWMGE\ SRQF HLV SURJUDP V F XUFXOD SUDFWHV DQGWDG WRQVWKDWDFLQDWMILQGLYLGXDO DQGHTXLW VHHNLQJ JRXSV IUHH VDIH DQGIXQDSDUWF SDWRQ

,HVSRXVHWKHYDXHVKHGDE RXHZ KLF KDUHG WFUE HGLQP RUHG WMZLQQWKH8 QLYHUVLWËV(G XF DWRQDQ(T XW 3RQF \,ZLQF EDWMDF DQV HQYLURQP HQWWKDWWV VDIHDQGUF KRUDQWWXG EWVDQGZKHUHG YHUVHSHUVSHFWZH VDQGH[SHUHQFHVDUHP EUDFHG

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. QRZ LQJ DQGDSSOLQJ WXG EWWËQDP HVDQGSURQRXQVLVDFXFLDOSDUWRI G WHORSLQJ DSURGXFWZH WHQVWKDWWRWMUV VDIHW LQF XQLRQ DQGSHUVRQDOG JLQW 7KLVVDQP SRUWZQWSDUWRI WKHIQFXQLRQZRUNHUHDW4 XHHQËV

,I\RXZLVKWRF KDQJHKRZ \RXUQDP HDSSHDUVIRQ4 DQGRQFDWVOLWV SOHDVHIRQOWZ WKHVHWMSV <RXP D\ DOR XVHWKLVSURFHVVWR DG GRXUSURQRXQVWRWKHDSSHDUDQF HRI\RXUQDP H

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&QF NRQ3HUVRQDO,QIRUP DWRQWDE

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,QVXP &KDSWHU LVQRWFRQVLGHUHGSDUWRI WKLVFRXUVHDQGZHXUJH\RXQRWWRUHDGLW$QDOWHUQDWLYHUHDGLQJKDVEHHQSURYLGHG DQGWKHLQWURGXFWLRQWRFRXUVHQRWHVØOOLQLQRUPDWRQDE RXWSHUVRQDOLW\DQGKXW LQGYLG XDOYRUJURXSVHDEV

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$OORWKHUHT XLUHGDQGUHFRPPHQGHPDWHULDOVZLOOEHDYDLODEOHWKURXJKRQ4 b

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7KLVFRXUVHPDNHVXVHRI)HGE D)FXOW\0F*UDZ +LOO7XUQLWQDQG&URZGPDN %HDZDUHWKDWE\ RJJLQJLQWRWKHVHVLWHV\RXZLOO EHDYLQJRQ4 DQGDF FHSWLQJ)HGERDIUXLW0F*UDZ +LOO7XUQLWQDQG&URZGM)JQDQG&URZDLWHRMB‘EQPXADWK

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T XHVWLRQVDUHDQVZHUHGZLWKLQ KRXUV$QV RWKHUT XHVWLRQVWKDW RXZRXOGSUHIHUWR VKDUHSULYDWHO SOHDVHFRQWDFWP HRU\RXU 7$ DWRQHRI WKHHP DLOYDLWHGDWWKHWRSRI WKLVV\OODE XV7KHWDFKLQJ WDP FRQWDFWLQRP DWRQVORRFDWGRQWKHKRP HSDJHRI WKH F RXUVH

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7KHXQLYHUVLW F IR P XQLF DWVZLWKVWXG HQWYLD4 XHHQË/HP DLO3OHDVHFKHFN\RXHP DLOJXDUD WRHQXUH\RX GRQWP LVV LP SRUWDQWQRI RUP DWRQUHDWGWR\RUFRXUVH

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3V\F KRE RJUDSK\ (VVD\ 3DUW)LQDO 3DSHU	;	;	;		
0 LG VMP ([DP &KDSWHUV	;	;	;	;	
3URF RVHG)LQDO ([DP &KDSWHUV	;	;	;	;	;

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$VVHVVP HQW	: HLJKWLQJ
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3V\F KRE RJUDSK\ (VVD\	
3DUW RSWLRQDO 6WDWHP HQWRI 5DWLRQDOH	8QUDG HG
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DF LWLWLHV WKH\ ZRXOG UHF HLYH IRUWKLVJUDGQJ LWMP $OOWXG HQW KRZ HYHUP XWFRP SOHWM3DUW 6WDWMP HQWRI 5DWLRQDOH DQG 3DUW) LQDO3DSHU RI WKH3V\F KRE IRJUDSK\ $VWJQP HQWDQGE RWK H[DP V IRUWKLVFRXUH) RUP RUHLQIRUP DWLRQ VHH$F DG HLF 5HJXODWLRQ

$ODDWLJQP HQW H[F HSWH[DP V ZLOKDYHD G\DJUDG HSHUIRG 7KDWP HDQVWKDW&RXUH(QJDJHP HQW$FWLYLWHV DQG3DUW DQG3DUW RI WKH3V\F KRE IRJUDSK\ $VWJQP HQWDUHG XHIRQWKHG DHYSRVWMG Í' HDGLQÎ LQWKH&RXUH7LP HQDQH EXWZ LOOEHDFFHSWMG ZLWKRXW SHQDOW XS WR KRXUVDIWMZ DUG VÍ* UDFH3HULRG ÎLQWKH&RXU H7LP HQDQH

,I \RX KDYHH[WHQXDWLQJ F UF XP VWDQF HZ KHQDQDPKBXW

DSSOF DWRQVSURUMRWDWLQJ DQH[DP WMWVWDQGHQVXULQJ \RXUG MLFHLVXSGDWMGDQGVDIHJXDUGHGDJDLQVWP DZDUH) RUP RUH LQIRUP DWRQDE RXWUHP RWMSURF RWLQJ SOHDVHVHHKWWS ZZZ T XHQVX F DUHJLWWDUWXGHQVH[DP LQDWRQVH[DP V RIØFH VHUYLF HV UHP RWMSURF RWLQJ

,I \RX UHJLWMUHGWR ZULWMRQDQH ZLWK ([DP LW DQDLQRP DWRQSHUWDLQJ WR WKH WMFKQLFDOUHTXLUHP HQWVDQGSUHSDUDWRQIRUZULWQJ RQDQH ZLWK ([DP LW ZLOOE HSRVWMGLRQ4 ZHOOLQDG DQFHRI \RXUH[DP

,QRUG HUWR E IF IR HIDP LODUZLWK WKHDXWKHQWLFDWRQSURFHVVDQGWMWRXW RXUWMFKQRORJ\ \RX ZLOOKDYHDFKDQFHWR WNHSUDFWH WMWVWR KHSS SUHSDUH\RX IRU\RXUSURF RWHG[DP YLD([DP LW 7KHUHLVQRQHHGWR WXG \ IRUWKLVWMWWLZ LOOIRFXVRQ\RXUJHQHUDO 4 XHHQËVWLYDNQRZ OHG JHDQGZLOOQRWFRXQWWRZ DUG VRXUFRXUHJUDG H7KHTXHVWLRQVSURYLGHDUHP HUHO WR KHS\ RX WMWDQG SRWHQWLDO WRXEOHVKRRW\RUV\WMP LQDGYDQFHRI \RXU[DP U W/

7LP LQJ RI) LQDO([DP LQDWRQV

2 QF HWKH[DP VF IKG XHKDVE IHQØQDO[HGWKH[DP G DHZLOOE HSRVWMGRQ\RU62 / 8 6 DFFRXQW7KH[DP GDWMIRUHDFK7HUP DUH QLWMEGRQZKH) DF XOV RI \$UWDQG6FIHQFHZ HE S DHXQG HJ ,P SRSXODWRQ DWMV 6WXG HQW[DP VF IKG XHVIRUWKH) DOO7HUP DHSRVWMGYLD 62 / 8 6 LP P HGDWMO SURUMRWKH7KDQNVJLYLQJ KROG DIRUWKH: LQWMU7HUP WKH\ DUHSRVWMGRQWKH) UGD\ EHIRUH5HDGLQJ : HHN DQG IRUWKH6XP P HU7HUP WKH\ DUHLQG YLGXDO QRWMGRQWKH\$UWDQG6FLHQFH2 QOLQHV\ODEL 6WXGHQWV KRXOGGHOD\ ØQDO[LQJ DQ\ WDYHO SODQVXQWLODIWMUWKH[DP LQDWRQVFKHGXOHKDVEHHQSRVWMG ([DP VZ LOOQRWEHP RYHGRUGHIHUHGWR DFFRP P RGDWMHP SOR\ P HQW WDYHOKROGD\ SODQVRUÙLJKWUHVHUYDWRQV) RUP RUHLQIRUP DWRQUHJDUGLQJ Z KDWLVFRQVLGHUHG[WQXDWQJ FLUMZEDQ¥R

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- : RUNVKRSVDQGGRSS LQSURJUDPV6$66Ë(YHQWV&DOHQG DQGVHYHQWFRQJVRRQ
- 2QOLQHUHVRXUFHVWKDWSURYLGHWUDLQLQJPDWHULDOVIRUDFDGHPLFVNLOOVDQGZULWLQJ GHYHORSPHQWDWXQLYHUVLWLHV
- ,I(QJOLVKLVQRWRXUVWURQJXDJH6$66KDVVSHFLÀFUHVRXUFHVIRU(QJOLVKDV$G GLWLRQDOODQJXDJHVWXG HQWV LQFXGLQJZHHNO SURJUDPVDQG($/ DF DGHPLFZULWLQJ VSHDNLQJ OLVWHQLQJ DQGUHDGLQJVNLOOV

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4XHHQÊ8QLYHUVLWLVFRPLWWHGWRDFKLHYLQJ IXOOFFHVVLEOLWLHV IRUSHUVRQVZLWK GLVDELOLWLHV 3DUWRI WKLVFRPPLWPHQWLQFXGHV DUUDQJLQJ DF DGHPLFDF FRPRGDWLRQVIRUWXG HQWVZLWKG @

3HDVHUHDG7XUQLQJÊ/3ULYDF\3HG JH3ULYDF\3RDF\ DQG7HUP VRI6HUYLFH ZKLF KJRYHUQVXVHUVÉUHDWRQKLSZ LWK7XUQLQJ $OR SHDVHQRWHWKDW7XUQLQJXVHVF IRRNLHVDQGRWKHUWDFNLQJ WHFKQRORJLHV KRZ HYHU LQLWV VHUYLFHFRQWDFW LWK4 XHHQÊ/7XUQLQJKDV DJUHHGWKDWQHLWKHU7XUQLQJQRULWV WKLUG SDUW SDUWQHUV ZLOOXVHG DDWRODFWGWKURXJK FRRNLHVRURWKHUWDFNLQJ WHFKQRORJLHVIRU P DUNHWLQJ RUDG HUWLVLQJ SXUSRVHV)RUIXUWKHULQIRUP DWLRQDE RXWKRZ \RX FDQ[HUFLVHFRQWURORYHUFRRNLHV VHH7XUQLQJÊ/3ULYDF\ 3RDF\

7XUQLQJP D\ SURYLG HRWKHUVHUYLF HVWKDWDUHQRWFRQQHFWHGWR WKHSXUSRVHIRUZ KLFK4 XHHQÊ/8 QLYHUVLW KDVHQJDJHG7XUQLQJ <RXU LQG IBHQG ÊBWXVHRI 7XUQLQJÊ/RWKHUVHUYLFHVLVVXE IHFWWRDOO WR7XUQLQJÊ/7HUP VRI 6HUYLFHDQG3ULYDF\ 3RDF\ DQG4 XHHQÊ/ 8 QLYHUVLW KDVQR ODE OLW IRUDQ\ LQG IBHQG ÊBWLQWHUFWRQ\ RX FKRRVHWR KDYHZ LWK7XUQLQJ

$ VDVWXG ÊBW\ RX KDYHWKHUJKVWR RSWRXWRI 7XUQLQJ <RX P XVWQRW\ WKHLQVWXFWRUE\ WKHHQGRI : HHN RI WKHWUP DQGP DNH DUUDQJHP HQWVIRUDG GWLRQDOZ RUNRUDOWLQDWLYHVWDWLJHVWR HQVXUHWKHLQWJULW RI WKHZ RUN ,QVXFK LQWZQFHV WKHLQWXFWRULV VWLOO[SHF WHGWR HQVXUHWKHLQWJULW RI \RXUZ RUN

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3HDVHQRWHWKDWP RELHG HLF WDUHQRWUHFRP P HQG ÊBIRUWKHFRXUHDVWKH FDXVHVHYHUDONQRZ QLWXHVLQRQ4

&RP SXWHU6SHFLLFDWLRQV’G„•Ð 8Œ™L– u^1 ‰6V!7Y „8€–• D

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,I \RX SODQ WR WDYHOZ HVWRQJ0 UHF IR P HQGWKDW\RX FRQ2UP ,QWUQHVDYDLODELOLW\ LQ\RXUKRWFRXQW SURUWRGHSDUWXUH ,QWKH SDWWWXG EWVLQRWKHUF RXQWLHVKDYHE IHQEROGIURP DFFHVWLQJ FHUWLQZ HEVLWHV DVZ HOODVRQ4 ,WV WKHUHVSRQVLE 0LW RI DOOWXG EWVWR E IRN WDYHODURXQGFRXUHZ RUN DVZ HFDQQRWFKDQJH WKH IRUP DWRUMP LQJ RQDVWHVP HQWRU DWLJQP HQWDVDUHXO0V